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VOL. XXX. PART 12

NATIONAL MUSEUM

The JOURNAL of AGRICULTURE

Of The Department

VICTORIA AUSTRALIA

DECEMBER 1932 Price 3d.

Department of Agriculture

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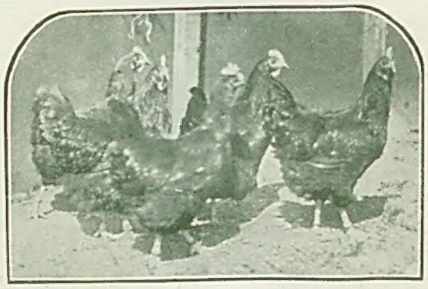

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Issued under the direction of the Hon. J. Allan, M.L.A., Minister of Agriculture.

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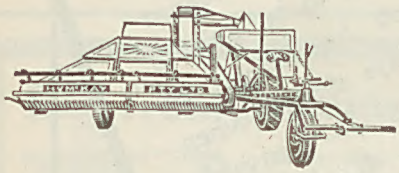

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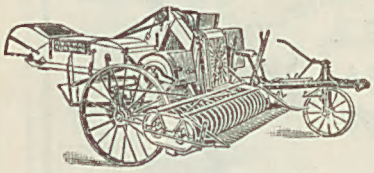

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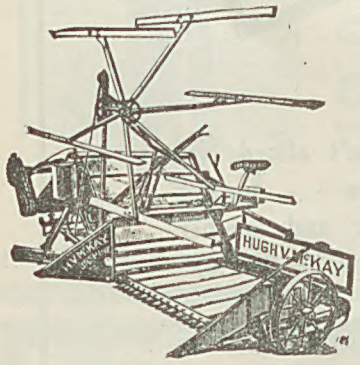

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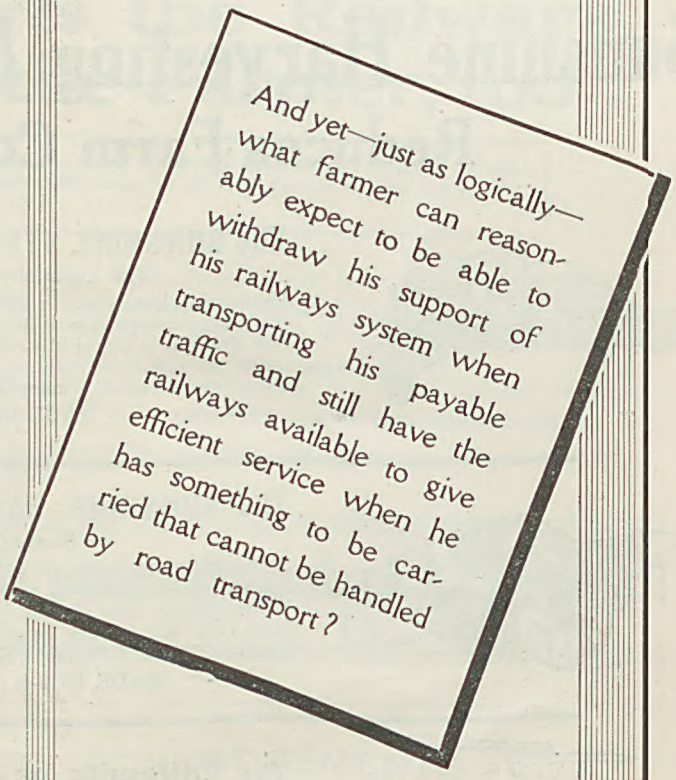
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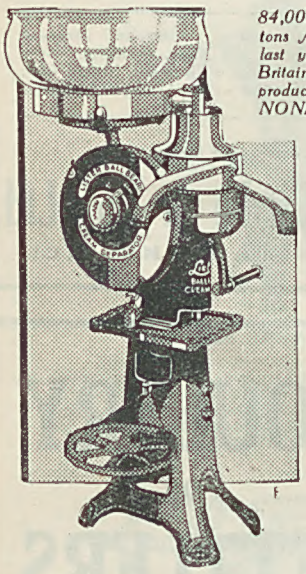

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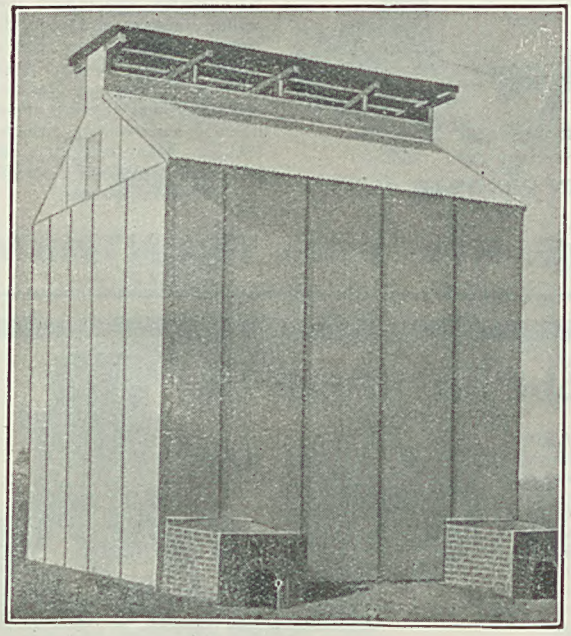

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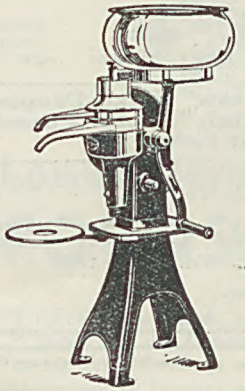

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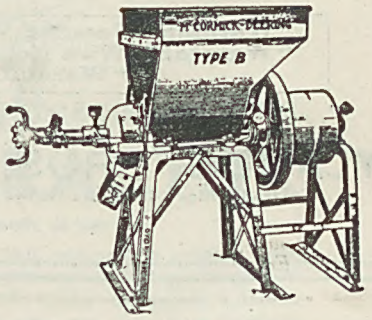

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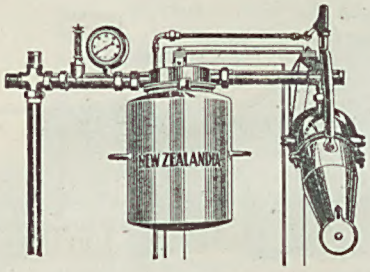

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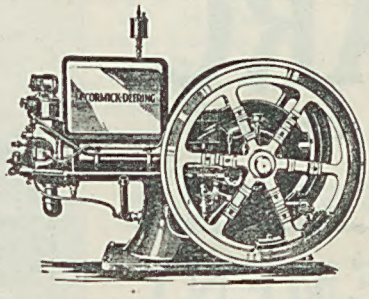

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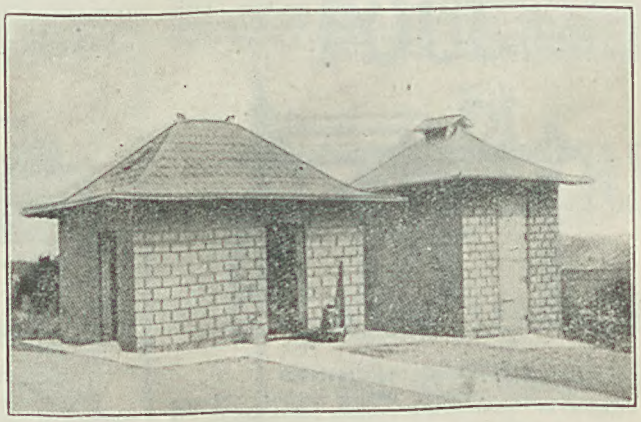

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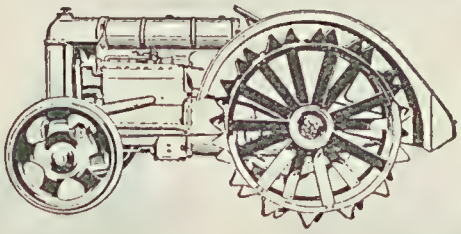

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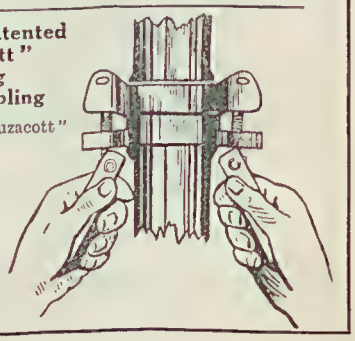

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The Journal of the DEPARTMENT of AGRICULTURE of VICTORIA

Perennial Rye-Grass.

Strain Investigation in Victoria

By F. R. Drake, B.Agr.Sc., Assistant Agrostologist.

PERENNIAL rye-grass is, without question, the most important grass in the majority of sown-down pastures in southern Victoria. Frequently also, in the more favoured localities, it appears as a volunteer, commonly to the exclusion of most other grasses. In a previous article in the December, 1931, issue of this *Journal,* the various species of rye-grass were described, and it was pointed out that, in districts where the climate permits perennial plants to survive, perennial, or as it is sometimes called, English rye-grass, should be used in the establishment of permanent pastures. The short-lived types have their uses—Wimmera rye-grass for dry districts where perennial plants cannot survive the dry summer, and Italian as a crop for the production of winter feed in areas of higher rainfall. Italian rye-grass may also be included in small amounts in permanent pasture mixtures to give feed in the first year, but is not normally expected to survive beyond the second year.

Given reasonably high soil fertility perennial rye is an extraordinarily aggressive plant. It very effectively competes with other grasses and weeds—so much so, in fact, that in many cases it is difficult to get other species to grow along with rye-grass. Its palatability is less than that of any of the annual rye-grasses, but it is readily eaten. It is capable of withstanding and recovering well from repeated defoliation, such as occurs in a grazed pasture, and, in addition, it is a productive grass. Perennial rye-grass, therefore, is included in practically all mixtures for permanent pastures for districts where the rainfall is sufficient. Large quantities of seed are used annually in Victoria for this purpose, and it is important that this seed should be of as high a quality and good a type as possible.

Perennial rye, as it occurs in volunteer or old-established stands, obviously is a long-lived plant. In spite of this fact, it is a very common occurrence in a newly-sown pasture where commercial perennial rye-grass seed is used, for all but a small proportion of the rye-grass plants to disappear after the first year. The farmer is apt to conclude from such an experience that his land will not hold rye-grass, or that the climate is unsuitable. Perennial rye-grass requires a fertile soil, and on any farm it is usually most abundant in the home paddocks, where there is heavy treading and compacting of the soil, and which receive a good deal of animal manure. But if the soil is fairly heavy and fertile and the rainfall is adequate, in other words, if it is known that

the land will carry rye-grass as shown by other similar fields in the district, it is necessary to consider that the seed sown did not give rise to truly perennial plants.

Of recent years failures with commercial seed have been so frequent that the problem of obtaining reliable seed has become one of considerable urgency. Clearly much of the seed being sold as perennial rye-grass is not true to name—that is, it is not giving rise to perennial, or long-lived plants. In order to discover the origin of such seed, the Agrostology Branch of the Department of Agriculture, during the summer of 1930-31, made extensive collections of samples of rye-grass seed, from as many sources as possible. As it was desired to investigate the present sources of rye-grass seed, as well as possible future sources, samples were obtained direct from commercial growers in the Western District and from old pastures, at present not harvested for seed, throughout southern Victoria. In addition to these local seeds, samples of the shipments of seed entering Victoria were secured. Large quantities of rye-grass seed are imported into Victoria annually from New Zealand and the United Kingdom. Eighteen samples of New Zealand seed were kindly supplied by the New Zealand Department of Agriculture. These consisted of three lots of each of the six types into which New Zealand rye-grass has been classified by Levy and Davies (*New Zealand Journal of Agriculture,* June and September, 1930). A few samples were obtained also from Melbourne seeds merchants.

Some 160 samples were collected during the first season, and special plots were established for their investigation. Two types of plot were used for each sample, one containing single plants and the other being a small broadcast plot maintained as a sward by mowing. The single plant plots have given evidence as to longevity, and vegetative and botanical characters, and the broadcast plots evidence as to recovery and persistence under frequent cutting. The trial was devised, however, primarily as a test of the perenniality or length of life of the different lots, although eye estimations are made of their comparative growth. New Zealand Certified permanent pasture seed (H.B. 85F, No. 1101/11D) has been used as a control in both types of plot, being systematically scattered throughout the single-plant plots, and being sown alongside each broadcast plot.

The broadcast plots were sown during the second week of May, 1931, and have been sown at intervals of from two to three weeks according to the amount of growth made. Reseeding was effectively stopped by this means. Seed for the single-plant plots was sown in seed pans, and the seedlings transplanted out in the field during May and June in rows 1 foot apart with 1 foot between plants in each row. Each line was represented by a plot containing six rows of eleven plants. These spaced plants were allowed to flower, and were then cut in the hay stage during late November. They were cut again five weeks later, and since autumn growth commenced have been clipped over twice. They will now be allowed to reach the hay stage again before the next cut this spring (1932).

An interesting difference between the reactions of the plants in the broadcast and single-plant plots to the onset of dry conditions was seen during the summer. By early January the broadcast plots had dried off and turned brown, with hardly a trace of green, and remained in that condition until revived by rains in mid-February. The spaced plants were less sensitive to drought, and browning off was not nearly so complete as in the broadcast plots. The somewhat striking difference noted suggests that for dry districts the chances of survival of rye-grass would be enhanced by light sowings of seed, to give a pasture in which the plants are well spaced, rather than one in which the plants form a dense sward.

New Zealand Department's Samples.

As the types obtained from the New Zealand Department of Agriculture were used to some extent as a basis of comparison for other lots, a brief description of their behaviour in a special section of the field is given first. The types are numbered from one to six, Type 1 being the longest lived, and Types 2 to 6 containing increasing proportions of annual or short-lived plants.

Type 1.—All lines which are passed for certification are included in Type 1. The plants are definitely of a long-lived perennial type, and are dense, fine leaved, and of a deep green colour, with usually more or less upright tillers, although there is a good deal of variation from plant to plant in this respect. To date—eighteen months from sowing—there

have been no deaths in the three Type 1 lots in the single-plant plots, while in the broadcast plots they have formed a good dense sward, effectively excluding all weed and clover invasion. Several other samples of New Zealand Certified seed from commercial sources are giving similar results, and in the control plots, of which there are 30, each containing 66 plants, only two plants have died.

Type 2.—In the Type 2 plots most of the plants are similar to Type 1, but each line contains a proportion of coarse short-lived plants.

Type 3.—Most of the Type 3 plants are of perennial type—so far there have been no deaths—but in general there is more variation from plant to plant, with a few definitely coarse plants and many of the remainder rather sparse, spreading plants of unattractive appearance. In the broadcast plots the behaviour and appearance of these lots was rather similar to that of the control plots during the first year, except for a slightly duller colour and a fewer number of tillers per plant, but at present they are showing a marked falling off in density and growth.

Types 4 *and* 5.—Types 4 and 5 consist of an extraordinarily wide variety of plants in which coarse-stemmed plants with broad, soft leaves predominate. Many of the plants made very sparse growth during the first year, while others are of a definitely Italian type. Many are thick stemmed and generally coarse, but lack the vigour usually associated with the annual types of rye-grass. Abut 10 per cent. of the plants in these six plots have died, and many of the remainder, while still alive, are making little or no growth in the second year. In the broadcast plots they established rapidly from seed, and made vigorous growth during the winter—greater than the controls, but less in amount than that made by the Italian and Wimmera lots. During the spring, however, they commenced to show an inability to recover from mowing, in this respect being similar to the Wimmera rye-grass. Heavy mortality occurred during the summer, and their autumn recovery and growth during the second winter have been poor.

Type 6 (Italian rye-grass).—These were very vigorous, broad-leaved plants which made winter growth during the first year in excess of any other lots and recovered well from mowing well into the summer. In the single-plant plots (see Plate 1), about 30 per cent. of the plants died during the summer; the remainder are making fair but much reduced growth in the second season.

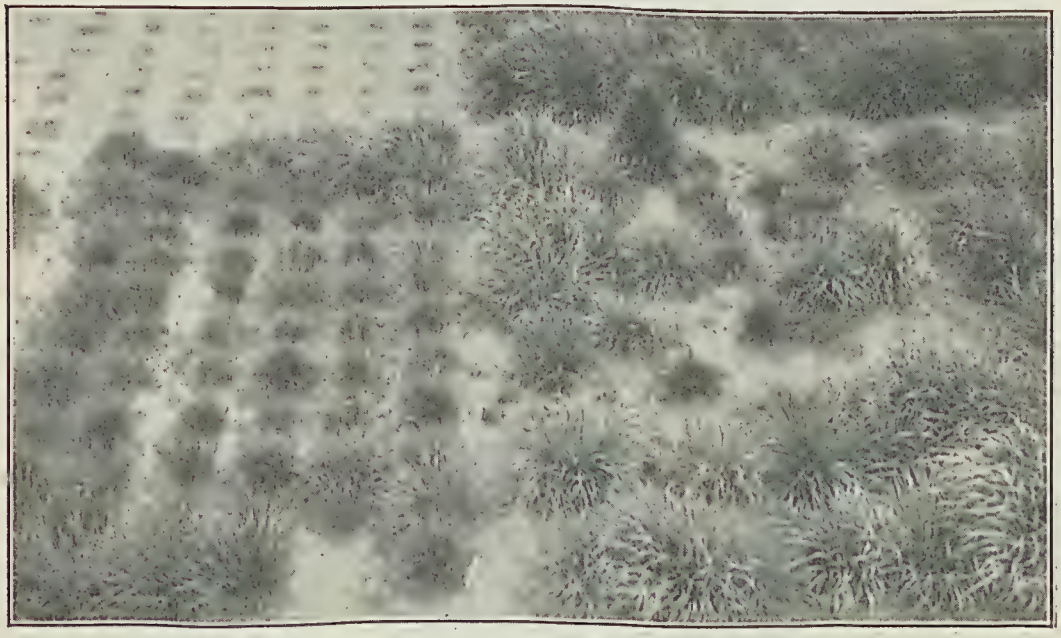


Plate 1.—New Zealand certified rye-grass on left and Italian on right. The Italian rye-grass Plot shows spaces due to deaths, and a coarser habit of growth.

Plate 2.—A plot of Colac rye-grass is shown (left) adjoining a control plot of New Zealand certified.

Victorian Samples.

Amongst the Victorian samples the most important group consists of those from commercial seed-growers. The majority of these lots were obtained from around Colac and district, together with a few from Central Victoria. Of the 21 Western District growers' samples, 17 have given excellent results. (See Plate 2). These seventeen plots contain 987 plants, and of these not one has died. Compared with the control plants, the Western District plants are equally vigorous, but tend on the average to have a slightly broader leaf and less erect tillers. Plants of similar type, however, occur freely in both lots. All of these lots were harvested from old-established pastures, and their behaviour proves beyond a doubt that we have, in the Western District, considerable areas carrying rye-grass of a productive and long-lived type. Of the four remaining samples, which were obtained from Weering, three proved to be pure Wimmera rye-grass, and the fourth a mixture of Wimmera and rather poor perennial plants. Practically all the Wimmera plants failed to recover after the first hay cut, and similarly in the broadcast plots they have died out.

The Victorian samples collected from fields which have never been harvested for seed are, with the exception of a few lots from newly or recently-sown fields, making an equally satisfactory showing. The majority of the Western District lots are similar to those obtained from commercial growers. About 25 samples were collected from old pastures throughout Gippsland, and these form an interesting group. Their perenniality is beyond question—of 1,700 original plants only nine have died—and in the main the plants are of an attractive and vigorous type. See Plate 3). These plants showed a tendency to remain green slightly longer into the summer than did the Western District lots. It is suggested that this difference is a reflex of the climatic differences between the two districts, the Western District having a longer and more severe summer than Gippsland, and seed from old Western District pastures appears to give rise to plants with a rather longer dormant summer period than does New Zealand Certified or Gippsland seed. This may be taken as further confirmation of the already accepted idea that locally-grown strains of any species are the best suited for local sowings, and suggests that New Zealand Certified and

Plate 3.—Showing two plots of Gippsland rye-grass, 18 months after sowing.

Gippsland grown seed may find it more difficult to persist when sown in the Western District than would seed from old Western District pastures. Conversely for districts more favoured climatically, New Zealand Certified or Gippsland grown seed may prove better adapted to the climatic conditions than Western District seed.

Imports from New Zealand.

Seventeen samples were obtained, each representing a shipment of seed from New Zealand, three of which were of certified seed. Of the remaining fourteen, two were of the certified type (Type 1)—these, however, happened to be very small lots. The other twelve samples, representing some six to seven thousand bushels of seed, have given very bad results, 33 per cent. of the single plants having died already. The percentage of actual deaths, however, gives no indication of the true nature of these lots, which are similar to, but frequently worse than the New Zealand Department of Agriculture Type 5 lots. The plants are of remarkable variety, but in general are coarse, with broad, soft leaves of a dull and often grey greenish colour. (See Plate 5.) The stems are thick, and usually show considerable development of red or purplish colouration. Many of the plants—in some lines practically all of them—showed a marked similarity to our Wimmera rye, with their open habit of growth with very little leaf at the crown at flowering time, and with thick red or purplish stems, large inflorescences and large seeds. Plants of this type were the first to die, many failing to recover from the first hay cut. Other plants show some resemblance to Italian rye-grass, while many, though quite dense, are very stunted with soft leaves, and unlike any rye-grass previously seen. Most of the surviving plants in this group have made very poor growth since the first hay cut, and the amount of growth made in the second

Plate 4.—Single plants showing comparative growth made during the second winter—1, Victorian; 2, New Zealand Uncertified (note stemmy sparse growth); 3, New Zealand Certified; 4, Irish Import.

winter has been very small. (See Plate 4, Plant No. 2).

In the mown broadcast plots their behaviour has been similar. The plants established rapidly from seed, and made good growth during the first winter, but very heavy mortality occurred during the first summer and during the second winter growth has been very poor, the plots being largely overrun with weeds and various clovers, and the remaining plants having a stunted and miserable appearance.

Imports from the United Kingdom.

Fifteen samples, representing about 10,000 bushels imported from the United Kingdom, were collected. These lots have shown a fair degree of uniformity, with none of the extreme variability from plant to plant and plot to plot seen in the New Zealand imports. In all plots, however, there were odd plants of Italian rye-grass. In the main the plants are of a perennial type, chiefly dense and leafy, but with a fair proportion of spreading

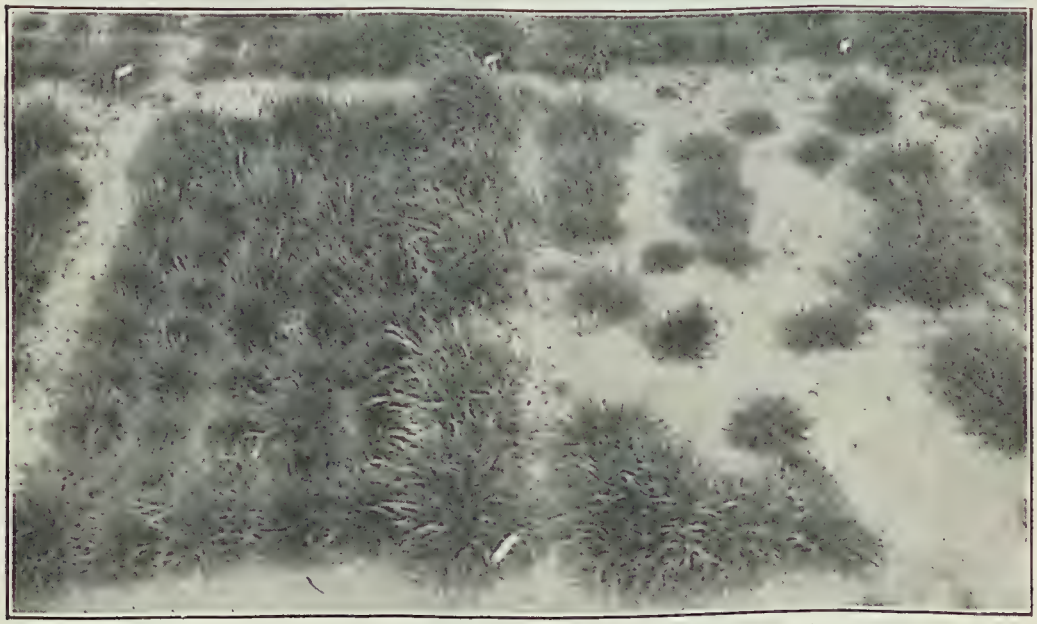


Plate 5.—Showing a typical plot of New Zealand rye-grass (right), in which many plants have died and the survivors are commencing to make stemmy growth in the second spring.

There is no doubt whatever that the great bulk of New Zealand ordinary or uncertified seed is the worst type of rye-grass on the Victorian market, and it is even questionable whether it may be correctly described and sold under the name of perennial rye-grass. When sown in a permanent pasture mixture it admittedly establishes and grows well in the first season, but by the second winter it has ceased to be a useful element in the pasture, and its disappearance affords an opportunity for invasion by capeweed and other undesirable plants. It is difficult to imagine that rye-grass of this type can be made to serve any useful purpose in Victorian agriculture.

and rather coarse plants. Of the single plants only about 2½ per cent. have died, but in no single plot have the plants made vigorous growth, and at present they are on the average about half the size of those in the control and good Victorian plots. (See Plate 4, Plant No. 4).

The plants have also proved extremely susceptible to rust, and altogether present a rather miserable and unthrifty appearance. (See Plate 6). In the broadcast plots these lots established well, and formed a good sward in the first year, but in the second year they are showing much shorter growth and poorer recovery from mowing than are the adjoining control plots. They are also thinning out a

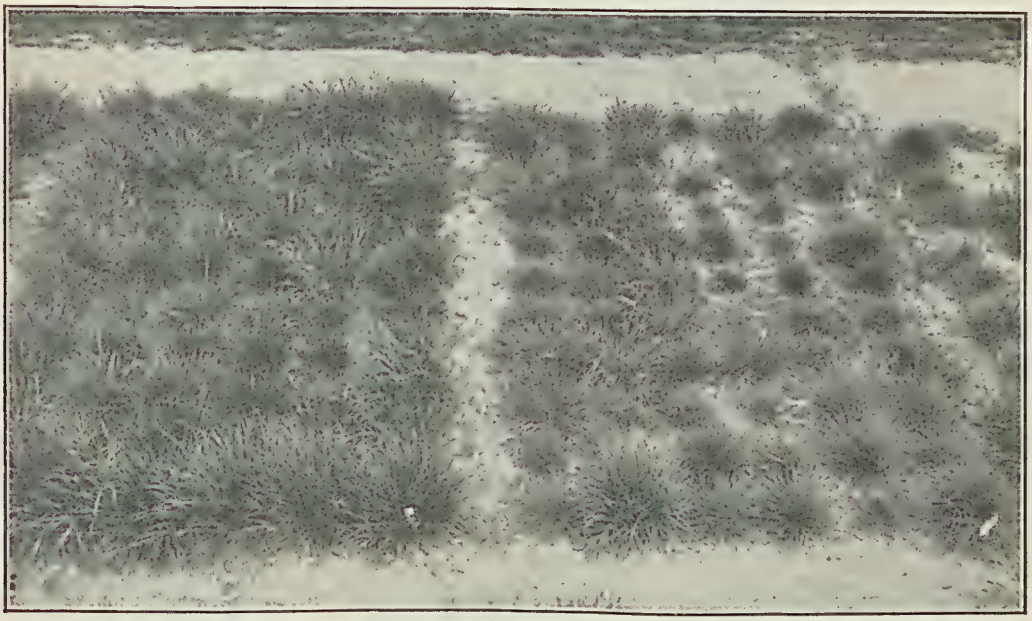


Plate 6.—The plot on the left is a control, that on the right a typical United Kingdom Import making weak growth.

little, the plants remaining small and invasion with clovers is taking place.

Merchants' Samples.

The samples obtained from seeds merchants, as was expected, turned out to be a very mixed lot, and serve to give an indication of the general unsatisfactory nature of the rye-grass seed on the Victorian market. The name under which the seed was sold seemed to bear very little relation to the actual type or strain. Several lots sold as Western District rye-grass turned out to be of the New Zealand short-lived type, while others proved to be Wimmera rye-grass. There is very definite evidence that considerable quantities of Wimmera rye are being sold as perennial rye, and, further, that fields containing much Wimmera rye-grass are being harvested as perennial. Some samples, however, were good, and any New Zealand Certified lots obtained were satisfactory.

Summary and Conclusions.

The most striking feature of these rye-grass plots is the variety of types to be seen. No single plot can be said to be really uniform as regards habit of growth, but for most it is possible to decide with little hesitation whether they are suitable or unsuitable for the purpose of establishing a permanent pasture. The chief characters taken into account are persistence or length of life and capacity for vigorous and sustained growth. It has been definitely shown that, with the exception of New Zealand Certified seed, all rye-grass seed imported into Victoria fails badly in one or both of these directions, and much of it is quite useless. As the great bulk of the seed used in Victoria is imported, this is a serious state of affairs, and while it is clearly desirable to exclude undesirable seed from our markets, this cannot be done until increased supplies of reliable seed are available to replace it. Such replacement must of necessity be a gradual process, as really good seed of a perennial nature is at present a scarce commodity.

New Zealand Certified seed has, in these plots, proved to be a standard article, giving rise to plants which are practically all of a truly perennial and vigorous type. This seed is either harvested from old pastures of high quality, or is once grown from seed from mother seed-producing areas. The price of such seed, however, is very high, and at present the supply is in no way sufficient to meet our requirements, even were the price within the means of the average farmer.

Western District seed harvested from old pastures in the past has achieved a reputation for reliability, but the amount harvested from year to year, apart from seasonal fluctuations, remains fairly constant. Unless we are to rely, and rely to an increasing extent as the demand for truly perennial seed becomes greater, on New Zealand Certified seed, it will be necessary to increase the amount of seed harvested in Victoria.

The general high quality of the samples collected from fields not harvested for seed shows that there is ample scope for extension. In Gippsland, in particular, there are large areas growing rye-grass of an excellent type from which a seed crop is never taken. It is considered that seed from such areas would be better suited for sowing in Gippsland than any other seed obtainable. The summer climate of Gippsland is, perhaps, less favorable for the harvesting of seed than is that of the Western District, but several fields were successfully harvested last year.

The presence among the Victorian samples of a few lots of inferior type makes it clear that if best results are to be obtained any expansion in the seed-growing industry must be rigidly confined to old pastures of known high standard and to seed crops obtained by once growing this old pasture seed. It is necessary, further, that seed harvested from such fields be marketed in such a way that its identity is not lost, enabling it to be bought and sown with confidence.

Fungicides Act

Prosecution for Selling Compound Below Standard

A DECISION of importance to orchardists and storekeepers was given recently by Judge Woinarski. The case was an appeal against a judgment given on the 25th August, by Mr. J. W. K. Freeman, P.M., in the Court of Petty Sessions in the case of Robertson *v.* Lawford's Fruit Exchange for a violation of the *Fungicides Act* 1928, No. 3688.

In the lower court Lawford's Fruit Exchange was charged with—

1. Selling an insecticide, "Insecto" Nicotine Sulphate Compound, which was not in accordance with the standard fixed by proclamation, contrary to sections 4 and 5 of the Fungicides Act.

2. Selling an insecticide, "Insecto" Nicotine Sulphate Compound, and failing to brand or stamp upon or durably affix to a package containing such insecticide a statement of the percentage of nicotine contained therein, contrary to sections 6 and 8 of the Act.

3. Selling an insecticide, "Insecto" Nicotine Sulphate Compound, and failing before or as soon as possible after delivery to give an invoice certificate stating the percentage of nicotine, contrary to the provisions of sections 6 and 7 of the Act.

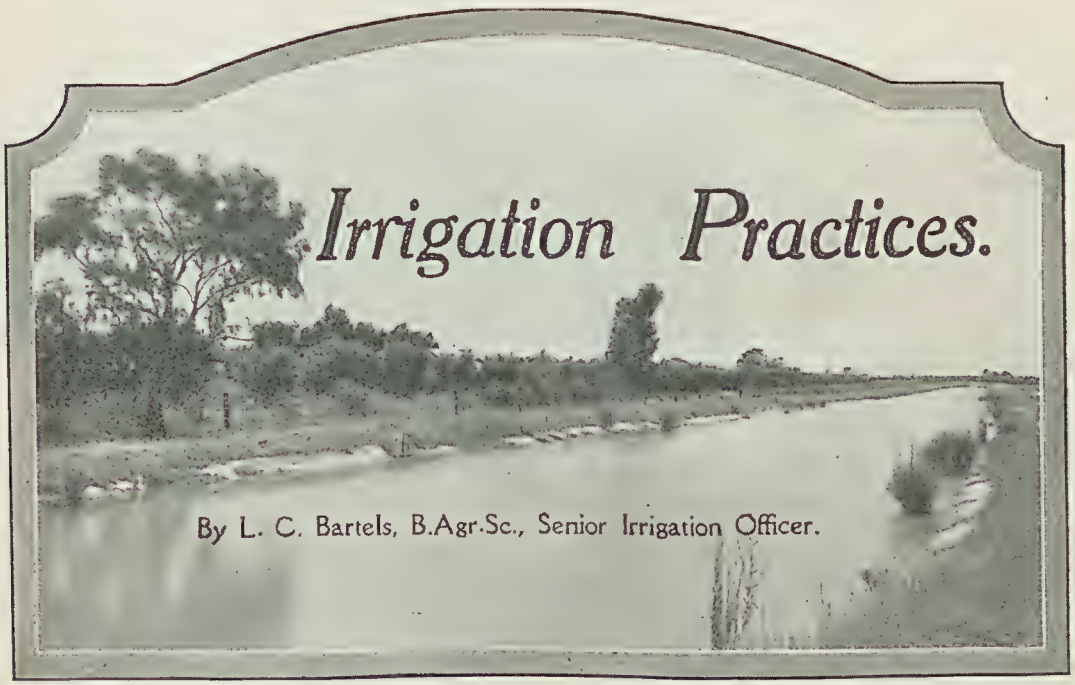
The facts of the case, as narrated by Mr. W. C. Robertson, chemist, and inspecting officer under the Fungicides Act, were as follow:—

A sample of "Insecto" nicotine sulphate compound, prepared by Lanes Ltd., of Sydney, and obtained from stock on the premises of Lawford's Fruit Exchange, at Doncaster, on the 19th July, 1932, was found on analysis to contain 9.55 per cent. of nicotine, whereas the standard fixed for nicotine solutions by proclamation under the Act is not less than 20 per cent. nicotine. The deficiency in the active ingredient (nicotine) proved to be more than 50 per cent. A fine of £5 5s., with £5 5s. costs, was inflicted.

The labels attached to the parcels containing the insecticide did not state the percentage of nicotine, nor was an invoice certificate guaranteeing the percentage of nicotine in the "Insecto" tendered at the time of sale.

A fine of 10s. was imposed for each of these offences.

An appeal was lodged against the decision on the major charge, viz., the nicotine deficiency, and the case was re-heard before Judge Woinarski, who dismissed the appeal.



Irrigation Practices.

By L. C. Bartels, B.Agr.Sc., Senior Irrigation Officer.

WITHIN the State of Victoria there is an area of approximately 500,000 acres under irrigated culture. The actual area irrigated varies each year according to the rainfall, having been as high as nearly 600,000 acres in 1929-30. The total irrigated acreage includes 70,000 acres of vineyards, orchards, and gardens, the remainder being devoted to irrigated agriculture, including the growing of lucerne, pastures, winter cereals, summer forages, and miscellaneous crops.

In addition to the area irrigated, there is an area of approximately 15,000,000 acres supplied with water for stock and domestic purposes. Water storages with a capacity of 1,300,000 acre feet are at present in existence, and works in course of construction will augment the storage capacity by another 1,000,000 acre feet. These figures give some idea of the magnitude of Victoria's irrigation schemes, and help one to realize the importance of irrigation in the development of the State.

Irrigation has permitted the intensification of agriculture in many districts, but the proper development of our irrigation settlements depends largely on the efficient use of water, so that available supplies may be spread to best advantage. On the farms it must be applied to the land with the least waste; it must be spread uniformly, and it must be put on at such rates and frequencies as will ensure the best production with the least cost and effort. That is the correct use of water, and we may regard as misuse any practice which leads to waste of water, time, or labour, and particularly the practices which bring about injurious effects in the soil, such as water-logging and salt trouble.

Conditions, of course, vary in different parts. In most of the irrigation districts the land is alluvial plain, and it is prepared for irrigation at relatively low cost, but there are localities where land preparation is costly and involved. What we frequently find is that fashions prevail in particular districts, and a system of irrigation is adopted in imitation of neighbouring districts without regard to the peculiar requirements of farm or district. The rich porous soils of the Bacchus Marsh and Maffra districts require different watering methods to the heavier soils of the Goulburn Valley, while the clay loam soils of the Tragowel plains are very different to the Mallee type of soils at Cohuna.

The method of irrigation to be adopted depends upon the climate, the character of the

ground, the permeability or otherwise of the soil to water, the kind of crop to be grown, and whether the crops are temporary or permanent.

The water requirements of lucerne and mixed pastures have been the subject of study at the State Research Farm for many years, and some interesting information is available as to the water cost of these different fodders and the influence of varied rates and frequencies of watering on productivity and length of life of lucerne stands. The production of pastures and the composition and quality of the herbage are governed by the methods of watering. The lucerne tests were the first to be started. Quantities of water, ranging from 1 foot per acre per annum to 4 feet per acre, have been applied to different plots, both the quantity and the method of application being varied. For example, two plots received 18 inches, one in six waterings of 3 inches, and the other in three waterings of 6 inches. Similarly three plots received 24 inches, one in six lots of 4 inches, one in four lots of 6 inches, and one in eight lots of 3 inches.

Sheep on irrigated Lucerne.

Lucerne is a remarkable plant in that it will survive under dry conditions for long periods. It has very deep roots, and is well adapted to those conditions where irrigation cannot be carried out at frequent intervals. In some districts there is such a big area to be served that water may not always be available when required, this fact, of course, must be borne in mind when considering the best practice for adoption.

Let us consider, first, the influence of water on production. The Werribee experiments have shown us that the yield of lucerne increases with increasing quantities of water, but not in proportion to the extra water applied—the best returns per unit of water were obtained when 2 feet per acre of water was applied in the season. When sufficient water is available to give more than 2 feet per annum, it is better to apply it to an extended area of lucerne, although both 2½ and 3 feet of water per acre gave payable results in that the value of the increased yield more than offset the cost of the extra water.

It may be stated that including rain and irrigation it takes 600 tons of water to produce 1 ton of lucerne hay. The efficiency of the water depends largely on the method of application. For example, 2 feet of water was shown to be the optimum application for the season, but the value of that quantity of water was greatest when it was applied in six lots of 4 inches. Four lots of 6 inches did not give as high a yield, nor did eight waterings of 3 inches. Obviously, the value of any system of watering lucerne depends on the permanence of the stand under that system, and herein is another point in favour of moderate waterings. It will be found that although increased yields of lucerne are induced by heavy waterings such as 3 and 4 feet of water per annum, such results, do not last—the lucerne rapidly thins out, and the plants seem to be more susceptible to disease.

The quality of the produce is another consideration and quality is governed directly by watering methods. Heavily watered lucerne is often coarse and inferior, and because of the thinning out of the stand the hay soon becomes mixed with grasses and weeds.

Mixed pastures, which are becoming an important feature of the irrigated districts, require no more water than does lucerne, but they do require more regular watering. There is a good deal of misconception on this point. It is true that excessive quantities of water may be applied to mixed pastures without direct harm, but this fact does not justify the use of wasteful methods in watering pasture. Experiments at the Werribee Research Farm indicate that, as with lucerne, 2 feet of irrigation water applied in six 4-in. waterings induces the best yield from pastures

and maintains a good balance of species, a satisfactory condition of the herbage and a spread of production through the year. All of these factors are influenced by the method of irrigation, and, on the same soil sown with the same mixture with the same manuring practice, entirely different results will accrue according to whether the watering is frequent or infrequent, abundant or scanty. Mixed pastures are flexible in that regard, but some of the species have definite limitations in their adaptation to irrigated culture. For instance, it is of little use sowing white clover in our northern districts unless moist soil conditions can be maintained. That this plant can be grown successfully there is shown by the luxuriant white clover pastures at Cohuna and Swan Hill, but on the Tragowel plains under present conditions lucerne, subterranean clover, and Wimmera rye-grass have the greatest possibilities. Many farmers have had encouraging results with these crops, and when they are successfully established their cultivation presents a much better method of using water than those commonly grown.

There has been considerable development in irrigation methods in Victoria, and one finds, in most of the closer settlement areas particularly, that much attention is paid to the layout of the land for irrigation, careful grading and checkbanking being undertaken in order to permit of uniform watering and a proper control of the flow. In some places, however, antiquated methods of applying water still prevail. On the northern plains, big areas of natural pasture are still watered by wild flooding. The water misses the bumps, fills the depressions and crabholes, and eventually finds its way into swamps. Of course, it is desirable for a farmer to keep the water in his own paddock, and usually a delver bank is erected along the fence line. Sometimes the water cannot be made to cover the paddock, and one or two delver banks are erected to dam it and force it on to the higher spots; when this does not avail cross checks are constructed. Under this system there can be no pretence at uniform watering, since there may be a foot of water near the bank and an inch at the further reaches. The results, of course, are irregular, and one frequently sees a mosaic pattern in a paddock with green patches and dry patches intermingled.

The contour check system was adopted by some to meet the changing slopes of their land, and while it did help the even spread of the water it did not make for even absorption.

These systems are excusable under certain conditions. Much of the land in the north is used for cereal growing, and, in a dry spring, there is risk of crop failure unless it is irrigated. In such a contingency, refined methods cannot be adopted. Similarly, it is a common practice to sow summer forages without much preliminary preparation of the land. The sorghums and millets do not demand the same care in watering as does lucerne, but if only temporary checkbanks are erected care should be taken to place them so that they may serve as a foundation for permanent work later on.

The system recommended for general use in growing permanent crops under irrigation is the so-called border method. This system, which is in wide use in Victoria, involves the division of the land to be irrigated into bays by means of banks which extend down the slope. The water is admitted at the head of the bay, and flows down the slope in a sheet. These bays are usually about 10 chains long and a common width is 45 feet, but both length and width are altered to meet varying conditions. Where sidefall exists, it is necessary that the bays should be levelled from side to side by shifting the soil from one side to the other. To minimize this work and to ensure a better spread of the water, it is usual in such cases to build the banks closer together. Usually on steep slopes the bays are narrowed for the same purpose. On porous soils the bays should be shortened, because the excessive absorption at the head of the bays while the water is moving down, may lead to waste. The slope, sidefall and porosity of the ground are all factors that determine the size of bays best adapted for the irrigation of an area.

Objection may be raised that it is not enough to point out the water requirements of lucerne or mixed pasture, but that ways and means must be devised to get the heavier soils to absorb the requisite quantity. This is a valid objection on the part of many farmers. It is strongly recommended that the ground should be watered regularly; our experiments show clearly that even when the ground absorbs as much as 6 inches of water, that irrigation will have only a limited value if the growth it induces is not maintained by regular watering. Lucerne, which goes to flower in a stunted condition because of

dryness, is not induced to make further growth from that stage, the water produces a new growth from the base of the plant. The main consideration is that of improving the penetrability of tight soils. In some places, but not everywhere, subsoiling will improve the position. Experiments with gypsum have not been as successful in this direction as was expected, but good results have been achieved by the practice of supplementary watering. This means that, when the soil does not readily absorb water—that is when it takes only 2 inches or less at a watering—much better results will be obtained if the first watering is supplemented by another, say two days later. Only a small stream is required for this supplementary watering, because it spreads better on the moist ground, and it must be cut off shorter in its progress down the bay. On badly-graded land this second watering may aggravate the troubles due to water-lying. Land at Werribee, which takes only 2 inches at a watering grows only stunted lucerne. When the watering is made up by a supplementary irrigation to 3 inches, the production is doubled.

Farmers are urged to take an intelligent interest in the water requirements of their crops. The majority of them have Dethridge water meters, and the relation between the water used and the area of land it serves should be studied. The cyclometer attached to the wheel gives a direct record in acre feet of the water used. Farmers may note that the number of turns made by the wheel each minute is a rough measure in acre feet of the water delivered in 24 hours.

The crops themselves are good indicators of their water requirements, and a careful farmer watches them closely. Rain may fall at an opportune time, but in some cases farmers are too ready to convince themselves that a moderate fall of rain has relieved them of the necessity of watering their crops.

The Dethridge Water Meter.

Apart from the waste it entails, excessive irrigation may become a grave menace because of the changes it brings about in the soil. If drainage is good, it may not be a serious matter, but many of our irrigated lands have been rendered useless, at least temporarily, by the rise and concentration of salts —a disaster that might have been averted by a wiser use of water. In the early days the ground was not properly graded, but was laid out in rectangular bays which were flooded with water, the overflow from one bay flooding the next, and so on, in succession down the slope. Because the water was absorbed readily, it had no immediate effect, but it percolated down to join the water table. Subsequently capillarity brought the soil water with its dissolved salts to the surface, and under the evaporation of sun and wind there occurred a concentration of salts at the surface. Such is the condition in some of our Mallee lands. The irrigation of these and similar soils calls for the greatest care. Moderate watering is necessary, and the border system is strongly recommended. This is emphasized because there are many farming these lands who are most reluctant to alter their methods despite the fact that the cross-check and contour check systems they are using are both wasteful of water and conducive to the other troubles mentioned above.

The Sheep Industry

Helpful Hints to Sheep-men

6.—Foot-Rot of Sheep.

By R. J. de C. Talbot, B.V.Sc., Veterinary Officer.

[*Previous articles of this series, which appeared in the June, July, August, September, and November issues of the Journal, dealt with the selection of ewes and rams, lamb marking, classing the wool clip, fat lamb raising, and the sheep blowfly.*]

THE importance of foot-rot, which in recent years has been prevalent in Victoria, must be apparent to all who consider the losses which the sheep and wool industry suffers as a result of its spread. These losses include not only the reduced condition, and sometimes the death of the affected animal, but also the amount of time and money which must be spent on prevention and treatment.

Many serious outbreaks of the disease are due to the fact that some owners either do not, or will not, recognize that foot-rot is an extremely infectious disease, which may be carried and spread from paddock to paddock, or farm to farm, by affected sheep. If the infectious nature of foot-rot were recognized by all, and isolation and proper treatment of affected animals were rigidly practised, in a few years the disease would cease to be the menace to the industry that it is to-day. Foot-rot is world-wide in its incidence, and has long been recognized as one of the most serious troubles that the sheep farmer has to contend with. In countries where flocks are small, and under the careful supervision of an experienced shepherd, early recognition of the disease, and individual treatment and isolation of affected animals are possible. In these circumstances, it seldom assumes the character of an epidemic, as it does in Australia, where with large numbers of sheep running on expansive runs early detection of affected animals is difficult.

Foot-rot.

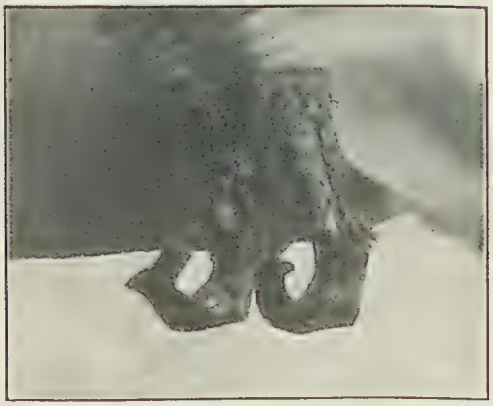
Cause.

In America the disease, which is similar to the Australian form, is said to be due to the *bacillus necrophorus*. This organism is found in the lesions of affected sheep in Victoria, and investigation is at present proceeding to determine whether it is the actual cause or a secondary invader.

It would appear that the causal organism gains entrance through some injury or abrasion to the skin between the claws, or in the vicinity of the coronet or through cracks in the horn. This is always more liable to occur during wet weather, or when sheep are grazing on wet pastures as under these conditions the horn becomes soft, and is more easily injured. Mud accumulates between the toes, and when it becomes hard is capable of causing injury to the horn and the skin between the digits; this opens the way for the germ to attack the tissues. Other predisposing causes are overgrowth of horn, injuries from thorns or thistles, or, in fact, anything which will produce the slightest break in the horn or skin between the digits or the coronet.

Extreme overgrowth of the hoof—predisposing to foot-rot.

For many years, the contagious nature of the disease was not generally recognized, but as a result of a great deal of experimental work it is now known that animals may be affected with it simply by rubbing on the skin between the claws material obtained from the diseased feet of another animal. The discharge from affected feet contains millions of the germs



Extreme overgrowth—affected with foot-rot.

which cause the disease and, for this reason, many sheep in a flock may develop foot-rot in a comparatively short time, particularly when the hoofs have become softened, overgrown, and broken after weeks of grazing on moist pastures.

Observations made in Victoria during the last two years indicate that rich pastures of heavy carrying capacity are favorable to the spread of the disease.

It is a well-known fact that the finer-woolled sheep are more susceptible to foot-rot than are some of the British breeds. These latter, however, are not entirely immune, but in them the disease usually runs a very much milder course, and responds more readily to treatment.

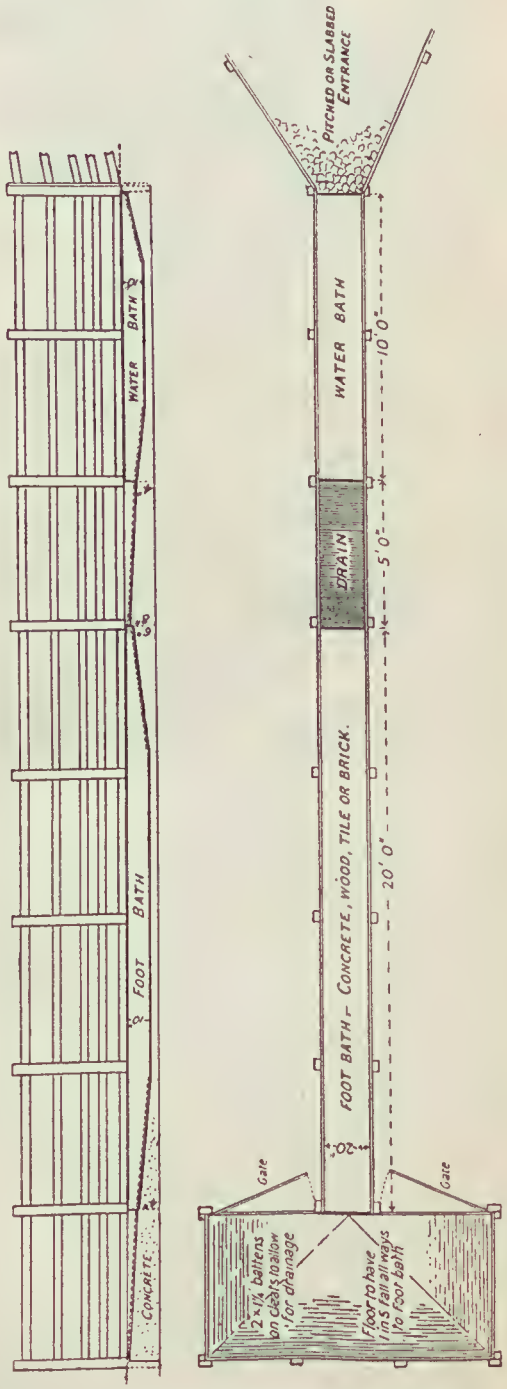


Fig. 1.—Plan and elevation of permanent foot-bath.

A portable foot-bath in use. The drying platform has been removed from the front of the bath. See Figs. 3 and 4.

Symptoms.

The first symptom noted is slight lameness, which rapidly becomes worse. At the beginning of an outbreak (for the first two or three days) only one or two sheep will be affected, but in a short time fresh cases will be noticed every day. If the lame animals are examined, it will be found that the tissue immediately above the cleft of the hoof, either at the back or the front, is swollen and painful, the inflammation spreads rapidly, and in a little while the skin breaks down, and a foul-smelling purulent discharge is emitted. This will be found to be penetrating beneath the horny tissue. By this time the animal will be extremely lame, and if only the front feet are affected, it will crawl about on its knees; if the hind feet are also affected, it lies down quietly.

As the disease progresses, and if no treatment is adopted, the horn becomes under-run with pus, and commences to break down; in some cases it actually peels off. The necrotic process may even invade the ligaments and joints of the leg. At this stage large quantities of pus, broken-down tissue and horn are discharged. The smell is most offensive and quite characteristic of the disease; an experienced sheepman has no need to examine a sheep suffering from foot-rot to make a diagnosis, the smell of broken-down horn indicates to him what the trouble is.

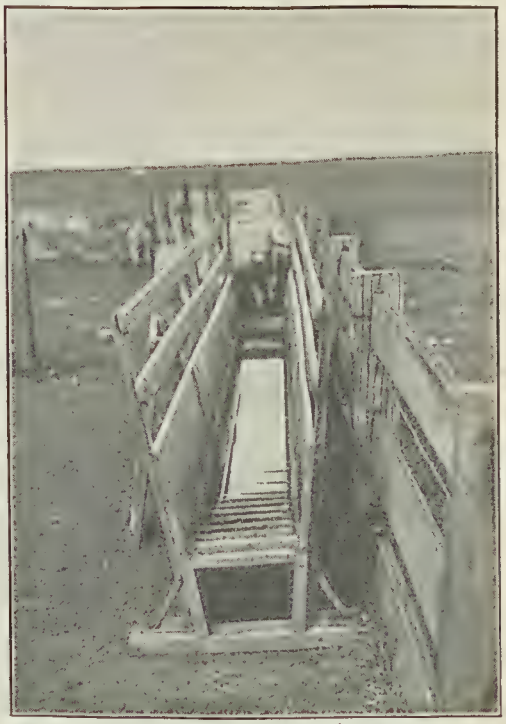
Unless treatment is adopted, it will not be long before the wool becomes fouled with the discharge, and in hot weather this will soon be struck by flies, the maggot adding further to the suffering of the unfortunate animal.

As the inflammatory processes advance, the animal runs a high temperature, loses its appetite, becomes emaciated, and death may occur.

A less common form of the disease sometimes met with is that in which the hoof remains quite sound, but abscesses form in the region of the coronet and fetlock. As a result, these joints become swollen, hot, and painful, and in a short time there is a profuse discharge of pus. This form of the disease is difficult to treat, and even after a cure has been effected there sometimes remains a permanent deformity of the limb.

Treatment.

As with all other diseases, treatment to be effective must be adopted as early as possible.



Front view of portable foot-bath with both gates open. See Figs. 3 and 4.

Cases taken early are fairly easy to cure, but the longer they are left the more tedious and uncertain is the treatment. First separate all healthy sheep from those affected, adopt the preventive treatment outlined below, and put them into a different paddock from the one in which the disease occurred. Those affected should be carefully examined, and divided into two lots, viz., those which have the disease in a fairly mild form, and which probably will recover after two or three treatments, and those which are badly affected, and will require individual treatment over a period. These latter should be kept in a small paddock close at hand.

Many different treatments have been recommended for the disease, and for some of them remarkable success is claimed. Whatever is used, however, it must be remembered that the fundamental and essential principle upon which all successful treatments are based is a thorough trimming of the hoof, followed by some antiseptic treatment which will destroy the causal organism, and assist healing of the affected parts.

On small properties where only a few sheep have the disease, each animal should be treated individually. First of all, the feet must be thoroughly cleansed from all mud, &c., and then the diseased and loose horn and tissue carefully cut away. Abscesses should be opened and drained of pus, and growths of proud flesh cut away. This is no easy job, but for the treatment to be effective it must be rigidly carried out. All hoof parings and dead tissue should be burnt, because if left lying about they may infect other sheep. After the foot has been cleaned up in this way a dressing should be applied. The most effective is a paste prepared as follows:—Stir into 1 quart of warm Stockholm tar 2 oz. of finely-powdered bluestone and 1 tablespoonful of lysol or monsol. An application of this mixture should be put on to the trimmed and prepared foot with a brush. If a more liquid dressing be preferred, then either of the following will be found effective:—(*a*) 6 oz. of bluestone mixed with 1 gallon of water, or (*b*) 1 part of formalin to 9 parts of water. Whichever of these mixtures is used, it will be necessary to hold the sheep in such a way that its feet will remain immersed for a few minutes. In the preparation of any mixture containing bluestone a wooden or an earthenware vessel must be used. The treatment should be repeated daily if possible until a cure is effected. In slight cases three or four dressings usually are sufficient. After dressing, the sheep should be placed, if possible, in a shed until the feet are dry.

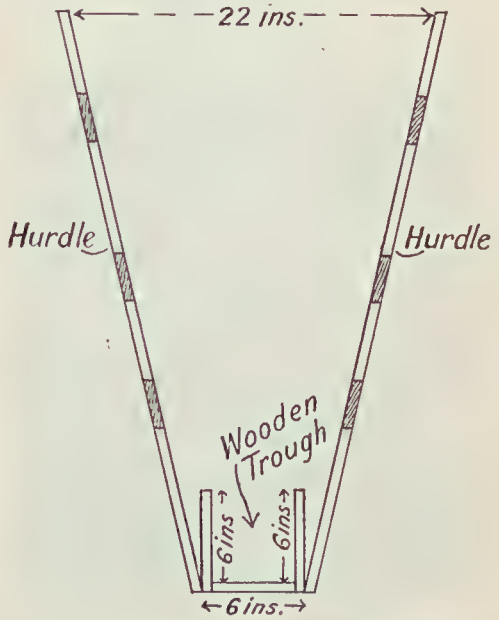


Fig. 2.—Cross-section of a simply constructed foot-bath suitable for the small sheep farmer.

On large properties where numbers of sheep must be treated, the use of a foot-bath will be necessary although for serious cases individual treatment, as suggested above, is most satisfactory. The plan of a suitable foot-bath is shown in Fig. 1. This consists of a long race divided into three parts; the first division is a water bath 10 feet long, in which the feet are washed to get rid of mud, dust, &c. The sheep then pass over a draining division, 5 feet long, and then into the bath proper which is 20 feet or more in length, and contains the solution for treatment. From this the animals pass out into a draining pen. This pen may be constructed with two divisions each capable of holding about twenty sheep. The animals are run from the bath into one of these pens until it is full, and held there while the other is being filled; in this way the sheep will be retained in the pen for at least five minutes.

The trough should be constructed of wood, concrete, brick, or tile (iron is unsuitable because some of the solutions used corrode metal), and should be from 8 to 10 inches deep, 20 inches wide at the top with sides sloping to a width of 8 inches at the bottom. When

required for use it should be filled to a depth of 4 inches with the solution prepared for use.

For the small sheep farmer an economical, but entirely satisfactory, foot-bath can be easily and cheaply constructed by taking three 10-ft. lengths of 6 inches x $1\frac{1}{8}$ inch softwood. These are nailed tightly together to form a trough, the ends being closed with small pieces of timber. Sides 3 feet high sloped out to be 1 ft. 10 in. apart at the top are attached to the trough, or a temporary hurdle staked into the ground may be used for the purpose. This form of bath has the advantage of being easily removed from one paddock to another. See Fig. 2.

Side view of portable foot-bath. See Figs. 3 and 4.

Another, but more elaborate form of portable foot-bath is illustrated in Figs. 3 and 4, and the accompanying photographs. This bath has been used successfully at the Melbourne and Metropolitan Farm at Werribee.

After the feet have been trimmed, &c., the sheep should be passed slowly through the bath, care being taken that they do not walk through on three legs, or rush too quickly, or lie down. After passing through they should be held in a dry clean yard until their feet are thoroughly dry; this precaution is necessary to guard against contamination of pastures by the poisonous mixture, and also against the removal of the dressing by the feet of the sheep brushing against grass, &c. They should then be placed in as clean a pasture as possible and on no acount in the paddock where the disease occurred.

Excellent results have been obtained by running the sheep through a formalin foot-bath (10 per cent. solution) allowing the feet to drain, and then making the animals stand on air-slaked lime until the hoofs are dry.

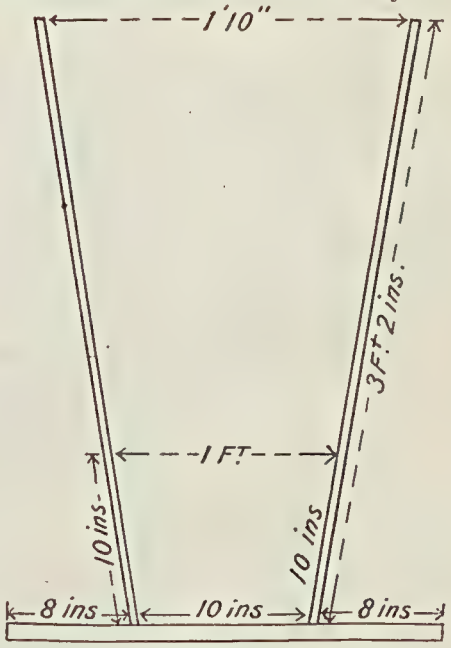


Fig. 4.—Section of portable foot-bath.

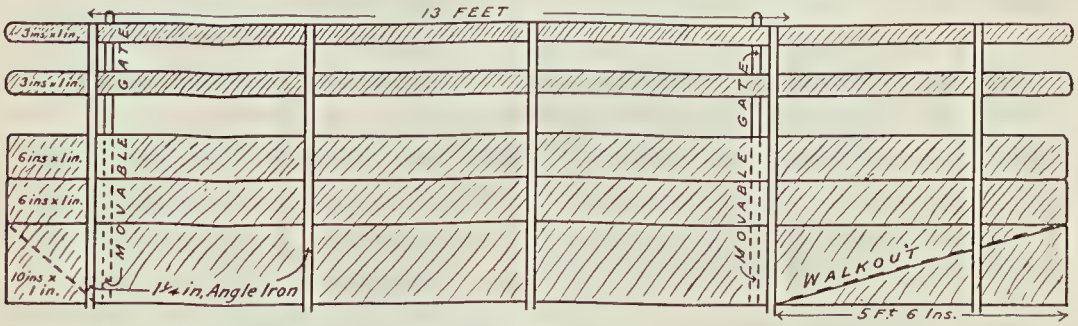


Fig. 3.—Side elevatian of portable foot-bath illustrated in accompanying photographs.

[Continued on page 579.

Packing Apples and Pears

For Export and Local Markets

By B. P. Krone, Fruit Packing Instructor.

AFTER careful consideration, based on experience gained in this State, the "straight" method of packing apples in the Canadian Standard fruit case is recommended for adoption in preference to the "angle" method. The "straight" method is now practised by the United States of America, South Africa, and New Zealand; and if we are to compete successfully on the overseas markets, we must fall into line with these large apple-producing countries.

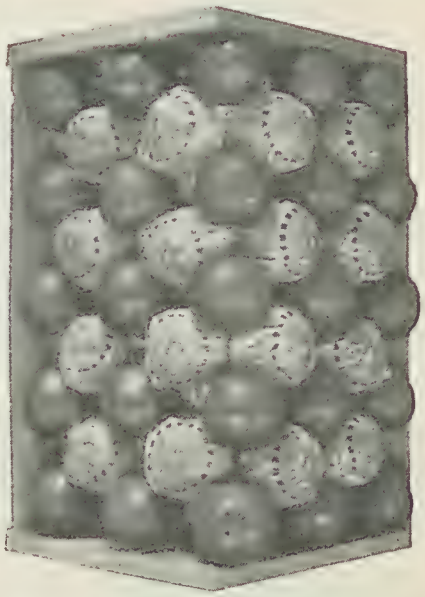
The "straight" method of diagonal packing is not new to Victorian apple-growers, as they have already adopted it for most of the small as well as for some of the large sizes. Citrus-growers also have adopted it for a number of years with success for all sizes of oranges both for local and export markets.

With the more general adoption of this method of packing, bruising and stalk damage will be largely decreased in comparison with the "angle" method, which causes the stalks of certain apples to press against the cheeks of others.

Packing.

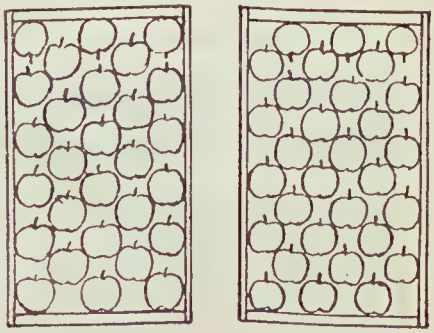
All the counts are packed on the diagonal system; but instead of the apples being placed at angles to one another, they are placed in the cases with their stalks facing in one direction. When long stalk varieties are packed, the last apples in each layer are reversed to prevent stalk damage, as is done with oranges. This is shown in the accompanying diagrams.

The correct height cannot be obtained unless the packer regulates the tightness of the pack in accordance with the size of the apples for a given style of pack; therefore, the smallest apples intended for the 3–3 and 3–2 packs should be packed a little more tightly than usual, while the largest apples intended for these packs should be packed more loosely than usual.



Granny Smith Apples packed in the standard case.

It has been found from experience that the most suitable bulge across the centre of the case, before lidding, is approximately $1\frac{1}{2}$ inches, while at each end of the top layer the apples should not project more than about $\frac{3}{8}$ inch, otherwise bruising will occur in the lidding process.



3-2 Pack. *3-3 Pack.*

NOTE.—The apples are packed "straight" in order that the stalks will fit in the spaces between the fruit and not damage it. The last apples in each layer are reversed.

CHART FOR EITHER ROUND OR LONG APPLES.

Approximate Size.	Actual Size.	Pack.	Layer.	Layers.	Total.	Remarks.	Average net Weight if Jonathans. lb.
Inches.	Inches.						
2¼	2¼	3–3	7 x 7	6	252	Small quarters	46
	2 5/16	3–3	7 x 6	6	234	Small/medium quarters	46
	2⅜	3–3	6 x 6	6	216	Medium/large quarters	45
2⅜	2 7/16	3–3	6 x 5	6	198	Large quarters	44
2½	2½	3–3	5 x 5	6	180	Small halves	42
	2⅝	3–2	7 x 6	5	163	Medium halves ..	42
2⅝	2 11/16	3–2	6 x 6	5	150	Large halves	43½
2¾	2 13/16	3–2	6 x 5	5	138	Small/medium three-quarter	43
2⅞	2 15/16	3–2	5 x 5	5	125	Medium/large three-quarter	41
3	3 1/16	3–2	5 x 4	5	113	Small to medium 3-in.	41
3⅛	3 3/16	3–2	4 x 4	5	100	Medium/large 3-in.	..
3¼	3 5/16	3–2	4 x 3	5	88	.. ..	..

Corrugated cardboards should be used at both the top and bottom of the case. Cardboards manufactured in fast colours should be selected and placed in such a manner that the corrugations face the wood of the case and do not touch the fruit. It is imperative that the counts and not the size should be branded on the ends of the cases.

Jonathans.

With Jonathans, packers are advised to pay particular attention when packing the 125 count. Incorrect packing of this count has been one of the chief causes of underweight apples arriving in the United Kingdom. In addition to the approximate diameters, the actual diameters and average net weight of the various counts are included in this chart; these being the result of a number of packing experiments conducted by this Department. Jonathan and London Pippin are described, as these are amongst the lightest and heaviest varieties exported. The most suitable counts for export are from 234 to 125 inclusive.

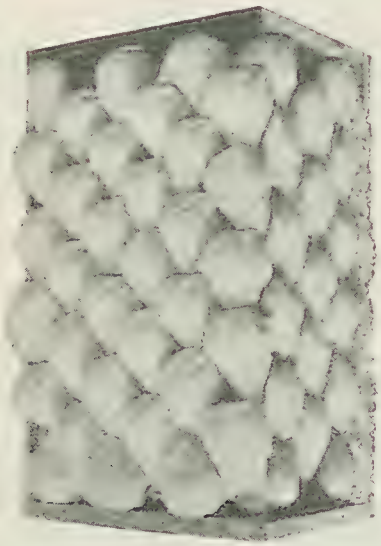
Specifications of timber required for the standard apple box:—

Ends.—2 pieces, 11½ inches long, 10½ inches wide, ¾ inch thick.

CHART FOR FLAT APPLES.

Approximate Size.	Actual Size.	Pack.	Layer.	Layers.	Total.	Remarks.	Average net Weight if Jonathans. lb.
Inches.	Inches.						
2¼	2¼	3–3	8 x 7	6	270	Small quarters	..
	2 5/16	3–3	7 x 7	6	252	Small/medium quarters	48½
	2⅜	3–3	7 x 6	6	234	Medium/large quarters	48½
	2 7/16	3–3	6 x 6	6	216	Large quarters	47½
2½	2½	3–3	6 x 5	6	198	Small halves	47
	2 9/16	3–2	8 x 7	5	188	Small/medium halves	45
2⅝	2⅝	3–2	7 x 7	5	175	Medium/large halves	45
	2 11/16	3–2	7 x 6	5	163	Large halves	45
2¾	2¾	3–2	6 x 6	5	150	Small three-quarters	46
	2 13/16	3–2	6 x 5	5	138	Medium three-quarters	44½
2⅞	2 15/16	3–2	5 x 5	5	125	Large three-quarters..	43
3	3	3–2	5 x 4	5	113	Small to medium 3-in.	..
3⅛	3⅛	2–2	6 x 6	4	96	Medium to large 3-in	..
3¼	3¼	2–2	6 x 5	4	88	.. ..	..

Sides.—4 pieces, 19½ inches long, 5½ inches wide, ⅜ or 5-16 inch thick.
*Tops and bottoms.—4 pieces, 19½ inches long, 5½ inches wide, 3-16 inch thick.
Cleats.—4 pieces, 11½ inches long, ¾ inch wide, ⅜ inch thick.
*Tops are also cut ¼ inch longer to allow for the bulge.



W.B.C. Pears packed for export in the 8-inch "Standard" Pear Case.

Pears.

The following packing chart is specially designed for pears, in the 8½-in. standard pear case (18 inches long, 11½ inches wide, 8½ inches deep—inside measurements).

The packs shown on this chart embrace long, medium, and short varieties. They have become standardized in the markets of the world. Packs other than these are known in the trade as foreign counts. A bulge of approximately 1½ inches is necessary when packing this case, the net weight of which should not be less than 42 lb.

The sizes shown are approximate, and intended to serve as a guide; they may vary slightly, but this will depend whether long or short types are packed. It is important that the count, and not the size, should be shown on the end of the case.

Correct height is obtained by regulating the tightness of the pack in accordance with the size of the pears for a given style of pack; therefore, the smallest sizes of the 4–3, 3–3, and 3–2 packs should be packed a little more tightly than usual, while the largest sizes of these packs should be packed a little more loosely than usual.

Specifications of timber required to make the standard pear case are as follows:—

Ends.—2 pieces, 11½ inches long, 8½ inches wide, ¾ inch thick.
Sides.—2 pieces, 19½ inches long, 8½ inches wide, 5-16 inch thick.
*Tops and bottoms.—4 pieces, 19½ inches long, 5½ inches wide, 3-16 inch thick.
Cleats.—4 pieces, 11½ inches long, ¾ inch wide, ⅜ inch thick.
*Tops are also cut ¼ inch longer to allow for the bulge.

Approx. Size.	Pack.	Layer.	Layers.	Total.	Remarks.
Inches.					
2	4–3	7 x 7	5	245	
	4–3	7 x 6	5	228	Small
	4–3	6 x 6	5	210	Medium
	4–3	6 x 5	5	193	Large
2¼	3–3	6 x 6	5	180	Small to medium quarters
	3–3	6 x 5	5	165	Medium to large quarters
2½	3–3	5 x 5	5	150	Small to medium halves
	3–3	5 x 4	5	135	Medium to large halves
2¾	3–3	4 x 4	5	120	Small three-quarters
	3–2	6 x 6	4	120	
	3–2	6 x 5	4	110	Medium three-quarters
	3–2	5 x 5	4	100	Large three-quarters
3	3–2	5 x 4	4	90	Small to medium 3-in.
	3–2	4 x 4	4	80	Medium to large 3-in.
3¼	3–2	4 x 3	4	70	

Salient Points for Export.

If the lids are in two pieces, keep them as close together as possible to prevent cutting the fruit.

Wood-wool or corrugated cardboard should be used at the top, bottom, and sides of the case when packing.

In all instances, the W.B.C. pear should be pre-cooled before export.

Wire-tie all cases to prevent breakages and ullage in transit.

Machine grading of pears can be recommended if the operation is carried out as soon

[*Continued on page* 582.

Irrigated Pastures

Competition at Rochester

Report of the Judge, E. T. Beruldsen, B.Sc. (Agric.).

AN inspection of the irrigated pastures in the Rochester district leaves one with a very favorable impression and the conviction that the progress shown with regard to better methods of establishment, watering, manuring, and utilization is going to result in increased prosperity for the farmers concerned. The exhibits shown in the competition conducted by the Rochester Agricultural Society were representative of a very considerable area in the district which has been laid down to permanent pasture of mixed grasses and clovers under irrigation.

Without exception, the pastures exhibited had been established only in the last two or three years, and it was pleasing to note the excellent swards which had developed. There is no doubt that with proper care and attention such pastures improve with age, and the fertility of the soil is gradually built up.

An intelligent interest was evidenced with regard to securing and establishing the best types of grasses and clovers, and, incidentally, one must commend the plots established at the district schools which afford an excellent demonstration of the differences between the various species of grasses and clovers. Also, with very few exceptions, they show the best types of these species, and should prove useful for comparison with those established in the field.

It was disappointing to find that in one or two instances white clover was not present in larger proportion. In an irrigated pasture, the summer production constitutes the largest proportion of the total production for the year, and as white clover is the species which, given the opportunity, contributes most largely to this summer production, anything which reacts against its proper development must reduce considerably the total production for the year. When adequate dressings of superphosphate have been applied, and yet white clover is not prominent, one is justified in concluding that the watering methods employed have been inadequate. In the middle of summer, a well-sustained supply of moisture is essential for the proper development of white clover, and if watering at that period be neglected, or if too light waterings be applied, the white clover will be retarded in its development, and bare patches appear.

DETAILS OF AWARD (One inspection).

Exhibitor.	Lay-out for Irrigation and Condition of Channels.	Condition of Pasture.	Mixture.	Uniformity.	Freedom from Weeds.	Total.
	20	20	20	20	20	100
1. E. Watson	19	19	18	19	19	94
2. H. A. Schier	19	18	19	19	18	93
3. Paterson Bros.	19	18	16	19	19	91
4. A. L. Clymo	18	18	17	18	18	89
5. M. D. Aitken	18	17	16	17	19	87
H. W. Raleigh	..	..	..	..	..	..

NOTE.—The pasture exhibited by Mr. Raleigh was not an irrigated pasture, and obviously could not be judged on the same scale of points as the others. However, this pasture was of special interest, and some of its features are described later.

These patches permit an undue aggression of subterranean clover during the following autumn and also the intrusion of inferior annual grasses and clovers and weeds. If not rectified, the aggression of the annual species increases from year to year and the better perennial plants are suppressed.

A pasture which is given careful attention with regard to water and manure may show signs of becoming clover dominant. When such a position arises, the grass-clover balance can be restored by management alone without resorting to the use of expensive nitrogenous fertilizers. If the paddock be shut up in spring, just when the grasses are beginning to make active growth and a few weeks before the white clover begins to make any headway, the grasses will obtain a good start over the clover, and if left to the hay stage, or to a stage fit to cut for silage, the clover will have been temporarily suppressed and the percentage of grass increased.

The winning pasture exhibited by Mr. E. Watson was sown on fallow in August, 1930, with the mixture recommended by the Department of Agriculture as follows:—

Perennial rye-grass ..	10 lb.	per acre
Italian rye-grass ..	3 lb.	,,
Cocksfoot	5 lb.	,,
Perennial red clover ..	2 lb.	,,
White clover ..	1 lb.	,,
Alsike clover ..	1 lb.	,,
Subterranean clover ..	1 lb.	,,
Strawberry clover ..	¼ lb.	,,
Lucerne	1 lb.	,,

One bag of superphosphate per acre was applied at seeding, and a second dressing at the same rate was given in the autumn of 1931. This year Mr. Watson applied a half bag per acre in autumn with a further dressing of one bag per acre in August. He waters his pasture at intervals of three weeks, shortening the interval to a fortnight in the middle of summer. Whenever practicable, supplementary waterings are given during this latter period.

The pasture paddocks are grazed in rotation for four or five days every three weeks with the dairy herd. The carrying capacity of the paddock exhibited appears to have been over one cow per acre per annum. On the day of inspection the pasture was being grazed by the dairy herd, and was in excellent condition. The pasture was very uniform, and the sward was comparatively free from weeds. It was unfortunate that the grasses did not constitute a larger proportion of the mixture.

Mr. Schier showed an excellent pasture in very good condition. This pasture also was sown in 1930, and has been manured heavily each year. A well-balanced mixture was present. Endeavouring to improve the mixture, Mr. Schier cross-harrowed the paddock in August of this year, and, when top-dressing, sowed some Hawke's Bay (certified) perennial rye-grass. It was evident that he had been successful in establishing this particularly good type of perennial rye-grass. Mr. Schier believes in harrowing occasionally to break up the droppings left by the stock, with the result that very few rank patches can be seen in this pasture. It is his practice to water every fortnight, but in the middle of summer the interval between waterings is shortened to approximately ten days.

The pasture entered by Messrs. Paterson Bros. was another sown with the Werribee mixture in the autumn of 1930 after eighteen months' fallow. It is watered every three weeks during the irrigation season, and receives a bag of superphosphate per acre every autumn. At the time of inspection the condition was very forward and subterranean clover predominated. Cocksfoot, perennial rye-grass, white clover, and lucerne were distributed throughout in much smaller proportion. It was a very clean pasture, and it was intended to take a crop of meadow hay from the paddock. It promised to produce a heavy crop.

Mrs. Clymo's and Mr. Aitken's entries also were of a high standard, and showed great promise. These entries were specially interesting in that they had been established last year on old thinned-out lucerne stands.

Mr. H. W. Raleigh's experiment with a mixture of Wimmera rye-grass, perennial rye-grass, white clover, and subterranean clover on a non-irrigable paddock has been an outstanding success. This paddock of 8 acres was sown down in autumn, 1930, with a cover crop of oats. The perennial rye-grass and white clover have not survived, but a better sward of Wimmera rye-grass and subterranean clover could not be found anywhere. There was a wealth of feed present, and this paddock along with 6 acres of oats has kept entirely twelve cows since April this year. At the time of inspection there were fourteen cows on it, and this number could have been increased. There is no doubt that a mixture

of Wimmera rye-grass and subterranean clover provides an excellent permanent pasture for autumn, winter, and spring feed on extensive areas in the irrigation districts where there is not an assured water supply in the middle of summer.

School Plots.

The judging of the school plots of grasses and clovers proved to be a difficult task, on account of their general excellence. Points were allotted for various features, including surroundings, condition of the herbage, purity of the species, labelling, condition of the paths, and freedom from weeds. A total of 60 points was the maximum attainable.

AWARDS.

1. Strathallan	..	58 points
2. Ballendella	..	57 „
3. Nanneella Estate	..	56 „
4. Nanneella South	..	55 „
5. Nanneella West	..	53 „
Echuca West	..	53 „

As has been stated previously, these plots afford a wonderful opportunity for the children and others in the district to become familiar with the various species of these valuable grasses and clovers. As, almost invariably, the best strains of these species have been established, they form a basis for comparison with those established in the field.

Mr. Roy (late supervisor for the Water Commission) is to be highly commended for instituting these plots, and the unflagging interest and keenness of the teachers and scholars in maintaining such a high standard is exceedingly praiseworthy.

The plots form a valuable adjunct to the work of the Young Farmers' Club. An indication of their value was obtained while addressing the children at most of the schools. A few leading questions soon revealed the fact that the children had acquired not only a knowledge of the botanical differences between the various species, but also much useful information with regard to their relative value and practical use in seeded pastures. This fact was corroborated by reading a number of competitive essays on the subject of the school plots.

Foot-rot of Sheep

(*Continued from page 573*).

The two essentials in the treatment and prevention of foot-rot are, first, an absolute understanding of the fact that the disease is highly infectious; and, secondly, the paring and preparation of the hoof, so that the dressing to be used may exert the fullest possible antiseptic action on the diseased parts.

The treatment of that form of the disease which is characterized by abscess formation in the region of the fetlock, consists of opening the abscess to allow the pus to drain away freely, and then syringing out the wound with 2½ per cent. monsol.

If large numbers of animals are so affected they can be treated expeditiously by a number of them being made to stand in a Monsol foot-bath for a period of at least one hour.

Prevention.

Before any newly purchased sheep are added to the flock, they should be carefully examined for any evidence of the disease, and even if this cannot be found, they should, wherever possible, be kept in isolation for some little time. In wet seasons avoid over-stocking, and keep the sheep on high ground, or else on well-drained pastures.

On properties where foot-rot occurs periodically it will be found that the incidence of the disease may be reduced appreciably if the animals are passed through a foot-bath at short intervals (every ten days or so) throughout the winter and spring. In some properties the lick troughs are placed on concrete floors about 14 feet by 10 feet, with a 5-inch raised edge all around. At the season of the year when foot-rot is prevalent, the floor is filled with the blue-stone or formalin mixture to a depth of 2 inches. With this device the sheep soak their feet every time they approach the trough for lick.

A paddock in which an outbreak of the disease has occurred should be kept free of stock, and placed under cultivation; failing this, an opportunity for a good burn-off should be awaited.

Mallee Wheat Tests

Field Day at Werrimull

Inspecting the plots.

WHEAT-GROWERS throughout the Millewa country, in the north-western Mallee, have taken a keen interest in the experimental plots established at Werrimull this year as part of the plans of the Department of Agriculture for intensification of research and investification into Mallee problems. The complete scheme provides for the establishment of a central Mallee research station, with supporting experimental plots situated in appropriate centres throughout the Mallee, and worked by the staff of the research station in co-operation with local farmers. The central station has been established at Walpeup and, with the decentralization brought about by officers being resident in the district, it will be possible for the Department to serve the Mallee more efficiently than hitherto.

The site selected for the Werrimull plots is located on the farm of Mr. H. H. Scott, on land typical of a large proportion of the Millewa. A comprehensive series of tests was laid down, represented by a total of 200 plots extending over 16 acres, and including variety trials with wheat and oats, manurial trials, rate of seeding and time of sowing tests with wheat, and observation plots with new crossbred wheats. In most sections the plots were sown in randomized blocks, with each variety or treatment repeated five times.

The first annual field day at Werrimull was conducted on 21st October, by officers of the Department of Agriculture, under the auspices of the Millewa Agricultural Council, and was attended by some 300 district farmers. An address on various aspects of wheat-growing was given by Mr. J. Brake, B.Agr.Sc., Senior Inspector of Agriculture, who conducted the visitors on an inspection of the plots.

The importance of early preparation and proper working of the fallows was stressed by Mr. Brake, who illustrated his remarks by reference to results from the cultivation trials at Carwarp, in which the yields from land fallowed in July were more than double those obtained from non-fallow, and appreciably higher than those from land fallowed in October, or fallowed early and subsequently neglected. Early sowing of wheat, he pointed

Section of the Wheat Variety Tests.

out, was an essential practice for the northern Mallee, and farmers in the Millewa should aim at commencing sowing in mid-April.

A striking feature of the Werrimull plots was the splendid appearance of the early-sown sections. In the rate of seeding tests the plots were sown at 45, 60, and 75 lb. per acre. Results from Carwarp indicate that 45 lb. of seed per acre is sufficient for general sowing in the Millewa. The wheat manurial trials were designed to compare the effects of dressings of 30, 60, 90, and 120 lb. of superphosphate per acre. Check plots sown without manure are included. The general effects of fertilizers were outlined to the visitors, and it was stated that results of 15 years tests at Carwarp indicated that under present economic conditions 50 lb. of superphosphate per acre was likely to be the most profitable dressing for fallowed land in the Millewa, with a lesser amount on new ground.

Some of the visitors at the Oat Plots.

The oat variety trials were notable for the excellent growth that had been made in most plots, particularly those sown with early-maturing types. Nine varieties were under test, including Burts Early, Palestine, Mulga, Belar, Gidgee, Dawn, Guyra, Lachlan, and Algerian.

In dealing with the wheat variety trials, Mr. A. B. Hackwell, B.Agr.Sc., Assistant Inspector of Agriculture, pointed out that official tests were very helpful to the farmer in deciding the varieties he should grow. A study of the average yields of varieties under test over a number of years gave a more reliable indication as to which were superior than did the results from one or two particular seasons. Average yields for eight years at Carwarp, and six years at Walpeup, were submitted as a guide to Millewa settlers. At both these centres it was shown Sepoy and Ghurka were the leading wheats. Both of these are short-strawed late-maturing varieties. Other wheats recommended were Ranee 4-H, and Rajah.

Farmers were advised to keep in constant touch with the experimental work, as higher yielding strains were continually being evolved. An example of this was the new wheat, Ranee 4-H, an improved variety which, in a six-year test at Werribee, had out-yielded the old strain of Ranee by 3.9 bushels per acre.

The fifteen wheats under test in the Werrimull plots were inspected, and a brief description of each variety was given. The series included Ranee 4-H, Rajah, Nabawa, Early Gluyas, Waratah, Mac's White, Omrah, Free Gallipoli, Sepoy, Ghurka, Currawa x Indian E x Telford's, Major x Ranee, Currawa, Yandilla King, and Ranee x Gallipoli.

Inspecting the Oat Variety Trials.

A description of the observation tests was given by Mr. G. S. Gordon, the Government Cerealist. In these plots 28 new crossbred wheats are being compared with Free Gallipoli, with a view to obtaining information as to their suitability for Mallee conditions.

Provision has been made for the continuance of the experimental work initiated at Werrimull this year. The plots will be sown on the three-course rotation fallow, wheat, and oats. For this purpose two sites additional to the one sown this year have been selected on medium class land on Mr. Scott's property.

Observation Plots.

Packing Apples and Pears

(*Continued from page 576.*)

as the fruit is harvested and before cool storage. On no account should light skin varieties be machine graded while excessively cold.

Harvesting.—The best time to harvest pears is indicated by—

1. The change of the ground colour of the skin from dark green to pale green.
2. The changing of the dots or lenticels from a light to a dark or corky appearance.
3. The well-filled-out appearance of the pear.
4. The ease with which the fruit can be separated from the spurs when harvesting.
5. In a pear ready for harvesting the juice immediately rushes to the surface when a slice is cut from the fruit; if it remains dry the fruit is still immature.

Temperatures.—Pears should remain in cool store at least three days before packing; the temperature should be 29–31° F.

Temperature of the truck before loading should be 50–56° F.

The core temperature of pears at loading should be 30–35° F.

If these suggestions be followed closely the temperature of the truck upon arrival at the boat should be 40–45° F., with the core temperature of the pears between 35 and 40° F.

On no account should the temperature of Williams Bon Chretien pears on arrival at the boat for export be more than 45° F.

Orchard and Garden Notes

By Edward E. Pescott, F.L.S.

The Flower Garden.

ONE of the principal garden duties now to be done is the planting of Dahlia tubers and young green plants for autumn flowering. Before planting, the soil should be well dug over; some good manure should be worked into it, and the ground well firmed after digging. Prior to setting out the plants stakes should be driven into the ground; if left until later, they may be driven through the growing tuber.

In planting, the position of the tuber piece does not matter, but the bud or the growing shoot should be placed in an upright position. Deep planting is unnecessary, as the Dahlia produces its tubers quite close to the surface.

After planting and firming the soil, give a light watering, to settle the soil around the plants. If green plants struck from cuttings are set out, these should be shaded with leafy twigs for a few days, until they are well established.

Gladiolus corms should also be put in, and in the same way, except that stakes are not required at first, as the position of the corm is always known. The corms should be placed at least 2 inches deep in the soil.

The Vegetable Garden.

Ample sowings of all forms of French and kidney beans should be made; the seeds should be dusted with lime to prevent attacks of soil pests. Plant out tomatoes, melons, marrows and cucumbers. All of these require very rich soil, and the plants should be very freely watered to ensure a quick growth. Lettuce, raddish, and mustard and cress seeds should be sown in as sunny a place in the garden as possible. Cease cutting asparagus; top-dress the bed, and water freely. Water and manure all rhubarb plants; cut back herbs, and give plants a good watering to induce a second crop.

Cactus Dahlia.

The Orchard.

The later sprays for codling moth should be regularly given. The apple and pear crops, though somewhat uneven in some districts, promise generally to be very good, so that spraying is an urgent necessity, especially the later oil sprays.

The destruction of red scale on citrus trees is urgent, and as the scale will soon be moving, work should be proceeded with almost at once. Fumigation with hydrocyanic acid gas is the only safe and sure treatment, and this is done in mid-summer. Where there are only a few trees, spraying with white oil should be resorted to. Two or more sprayings will be necessary, the first to be given before Christmas, and the second early in February.

Professional Papers

[This section is devoted to professional papers and articles of a scientific character.]

A Vine Uniformity Trial

A study of the variation of individual grape vines, together with a discussion on the general type of variation found in uniformity trials

By A. G. Strickland, M.Agr.Sc., Horticultural Research Officer, H. C. Forster, M.Agr.Sc., and A. J. Vasey, B.Agr.Sc., Agricultural Research Officers.

Part I.—Plot technique in field experiments on grape vines as deduced from a uniformity trial.

BEFORE the establishment of any field experiment it is essential to know something of the variability of the material to be dealt with, and of the inevitable errors due to this variability. All field experiments are subject to error, and this error may be divided into two main classes, viz.:—(1) the inherent variation in individual plants, and (2) the variation due to external influences, such as differences in soil fertility and other environmental factors.

The inherent variation of individuals.

Inherent variability of size, vigour, and productivity of individual plants is an important consideration in horticultural experiments, owing to the limited number of individuals that it is possible to include in a plot. In agronomic experiments the number of plants constituting a plot is so large that individual variation ceases to be a factor of importance. This tendency for individual plants to vary is due largely to differences in the genetic constitution, and would still persist even supposing that it were possible to grow all such individuals under absolutely identical environmental conditions. As is to be expected from genetic considerations, the inherent variability of plants propagated from seed is greater than that which is encountered in plants propagated vegetatively. For this reason seedling fruits, such as walnuts, show high individual variation, and the same applies in lesser degree to clonal varieties of fruit which are budded or grafted on seedling root stocks. The careless propagation of clones (i.e., lines of plants which have originated from a single plant, and are perpetuated vegetatively), may also result in very variable material owing to the inevitable propagation of "rogues," or individuals which are not true to type. The variation in most types of tree fruits may be minimized by the use of standardized root stocks, and Hatton (4) has shown that trees worked on vegetatively raised stocks are more uniform in respect to yield and other characters than similar trees worked on seedling stocks. Hoblyn (6) states that four sets of trees of Lane's Prince Albert apple, on widely different root stocks, which have been standardized and vegetatively propagated, show at ten years of age coefficients of variability of 23 per cent., 16 per cent., and 29 per cent. The values are much lower than those of Batchelor & Reed (1), who found a coefficient of variability of 41 per cent. for Jonathan apples on unknown stocks at the same age (ten years).

It is apparent that, for horticultural field experiments, every effort should be made to reduce the error due to inherent variation. This could be done in some cases by vegetatively propagating trees, vines, &c., on their own roots, but where this course is obviously impossible, standardization of root stocks is the only method of obtaining greater uniformity. At Rutherglen, vines are worked on phylloxera resistant stocks, which are vegetatively propagated, and there is every reason

to expect better uniformity than Batchelor and Reed encountered with Jonathan apples on unknown stocks. The trial to be described was carried out on a commercial planting of vines, approximately 25 years old, and it is to be expected that the portion of the variation attributable to inherent tendencies would be greater in this case than where special care was taken in selecting stocks; in establishing a field experiment every precaution would be taken, of course, to ensure uniformity of root stocks.

Variations due to external influences.

The second portion of the total variation met with in an area of fruit trees or vines is that portion due to differences in environment. Factors such as difference in soil fertility, the unequal prevalence of diseases and insects, difference in the effect of climatic details such as rainfall, sunshine, wind, &c., contribute to this type of variation. Also included in this portion are the differences induced by inconsistency in routine operations such as pruning, spraying, &c. This variation may be subdivided into two types, viz., (1) the variation due to gradual soil gradients from side to side of the area (this variation tends to be regular in character); and (2) the variation due to random causes such as patchy irregularities in soil fertility, differences in water supply, drainage, incidence of diseases, inconsistent pruning, &c. Under special conditions, it would be possible to get gradient variations due to factors other than soil fertility, such as the effect of the wind, shelter, drainage, &c., but in the main, environmental conditions (other than soil gradient), inducing variation are random, and therefore irregular in nature.

Uniformity trials have been conducted by several workers on various tree-fruits and bushes, and although the results of these trials cannot be applied accurately to all conditions, certain general conclusions may be drawn from them. Information regarding the variability of grape vines under non-irrigated conditions is, however, very meagre, and therefore this uniformity trial was carried out on a block of commercial vines growing without irrigation on the Rutherglen Viticultural Station. The block in question consists of a commercial planting of Shiraz on Rupestris Metallica (Cape) stock, and the vines are at least 24 years old. Individual vine yields were obtained from this area during the vintage of 1930. The vintage was a comparatively normal one, in spite of a rather dry season, and the average yield of the vines under examination was approximately 1½ tons per acre.

TABLE I.—INDIVIDUAL VINE YIELDS (LB.).

The vines are planted 8 ft. apart in rows 10 ft. apart. The actual vineyard rows run approximately S.W.-N.E.

Vine Number.	Row. 109.	Row 110.	Row 111.	Row 112.	Row 113.	Total Rows.†
1 ..	5½	4½	5½	7	6½	29
2 ..	5½	6½	4½	7½	4	28
3 ..	2½	5	6	5½	4	23
4 ..	5½	5½	2½	5½	7½	26½
5 ..	2½	3½	5½	6	4½	22
6 ..	3½	7½	8½	7½	16½	43½
7 ..	4½	6½	4	5½	11½	32
8 ..	4½	3½	4½	6	10	28½
9 ..	2½	8½	5	10½	9½	36
10 ..	4½	4½	7½	4½	8½	29½
11 ..	3½	5½	2½	7½	8½	27½
12 ..	5½	3½	6	5½	11½	32
13 ..	3½	8½	9½	4½	3	29
14 ..	*	*	*	*	*	*
15 ..	3	5½	4½	4	7	24
16 ..	5	5½	4½	5½	11	31½
17 ..	4½	4	4½	7½	9	29½
18 ..	3½	3½	2½	5½	6½	21½
19 ..	1½	2	6½	6½	12½	29
20 ..	4½	6½	2½	5½	6½	25½
21 ..	*	*	*	*	*	*
22 ..	*	*	*	*	*	*
23 ..	*	*	*	*	*	*
24 ..	3½	3½	6½	6½	11½	31½
25 ..	3	9½	6½	5½	13½	38
26 ..	5½	6½	7	6½	10	35½
27 ..	*	*	*	*	*	*
28 ..	*	*	*	*	*	*
29 ..	5½	7½	7½	5½	9½	35½
30 ..	3½	5½	1½	6½	7½	24½
31	1½	6½	5½	8	9	30½
Total Columns	98	139	131	156	219	743

† The word "rows" refers, in this instance, to rows in the table which actually run at right angles to the vineyard rows 109–113.

Yields were obtained from five rows (109–113 inclusive, section 1), each row consisting of 40 vines. Certain portions of the area were of necessity omitted from the analysis, notably an area extending about eight vines from the end of each of the five rows. This latter portion was adjacent to a plantation of eucalypts on the Rutherglen-road reserve, and the vine yields were abnormal, probably owing to the competition of the eucalypts for water and nutrients. Certain other sections of five vines running across the rows were discarded because of odd missing vines; inclusion of these

irregular groups would have made it impossible to obtain comparable plots of various sizes. The ultimate analysis was carried out on 125 vines, indicated by the individual yield of each vine in Table 1. Groups of vines that were omitted because of missing vines are indicated by asterisks. Included in the same table will be found the sums of rows and columns. These totals indicate a regular increase in yield across the rows 109–113, shown by a gradual rise in column totals from 98 lb. to 219 lb.; this is an example of gradient effect. It will be noticed that the row totals are irregular, indicating that yield variations along rows are of random character. (See analysis of Variance Appendix Part II.)

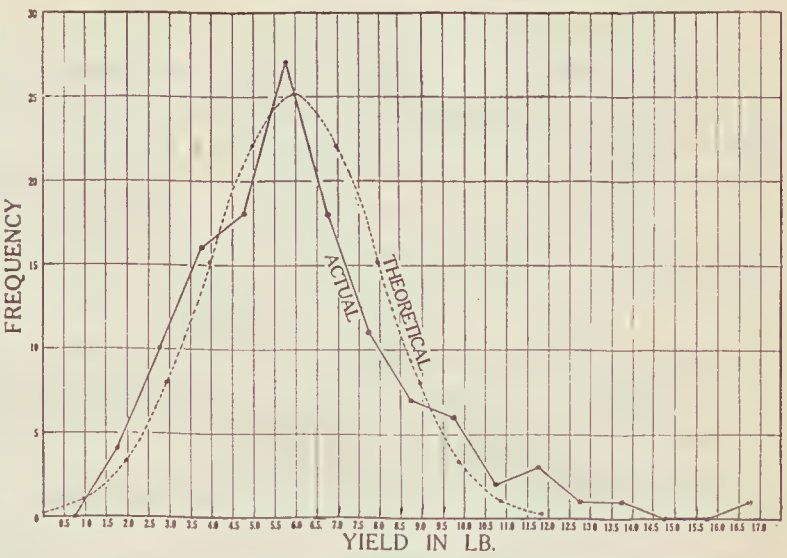


Fig. I.—Actual and theoretical frequency curves for individual yields of 125 grape vines grouped in periods of 0·5 lb.

Figure I. shows the frequency curve obtained by grouping the individual yields into periods of 0.5 lb. This curve is skewed, but not so definitely as to preclude the use of the ordinary formulae in computing standard deviation on the material. Shown also in Fig. 1 is the normal curve of error calculated from the mean and standard deviation of the individual yields. There is reasonably good agreement between the actual and theoretical curves.

As will be seen later in this article, a measure of the yield variation can be obtained by the use of certain statistical methods. This measure is commonly termed the "error" of the given set of figures. It is obvious, then, that the total variation or "error" may be resolved into two portions—(*a*) that due to soil gradient; and (*b*) that due to random variation. The latter error is likely to be more constant for any given type of horticultural crop, and therefore will be of more value in indicating the optimum size and shape of plot for future experimental work. The determination of the error is best carried out by Fisher's "Analysis of Variance" method (3), and the calculations for this trial are shown in the appendix.

The standard deviation of a unit size plot of one vine, as calculated by the analysis of variance method (see Appendix II. for detailed calculation) is 1.99 lb. Expressed as a percentage of the mean yield per vine, which is 5.95 lb., we obtain the figure 33.4 per cent. This last figure is termed standard deviation per cent., or more usually the coefficient of variability (c.v.), and is a measure of the random yield variation encountered on the area in question.

Determination of Optimum Plot Size.

The effect of increasing the size of a unit plot in a field experiment is to reduce the total random error due to inherent individual variation and random environmental variation. This is reflected by a lower figure for the coefficient of variability in the case of larger plots. The lowering of the coefficient of variability, however, is not proportionate to the increased size of plot, and the rate of reduction becomes less as larger and larger plots are considered. At first the rate of reduction of C.V. is rapid, and it is obviously wise to take advantage of this fact, and use larger plots in an experiment. Beyond a certain point the advantage of larger plots is less marked, and the smaller reduction of C.V. does not justify the added size. From a study of the coefficient of variability of plots of various sizes, we may determine just how far it is profitable to increase plot size, and when the information thus obtained is considered in the light of practical

considerations, the optimum size of plot for a field experiment may be decided upon.

In this particular trial the coefficients of variability of plots comprising 1, 2, 3, 4, 5, 6, and 8 vines have been computed. The plots were arrived at by grouping adjacent vines in each column (see Appendix), and the values of the coefficient of variability for each size are shown in Table II.

The data of Table II. is graphically represented by curves A, B, and C in Figure II., and examination of the table and figure shows that the coefficient of variability falls regularly from 33.4 per cent. in the case of single vine plots to 8.7 per cent. in the case of eight vine plots. The theoretical coefficient which is shown in Table II. and graphed (curve B) in Figure II. is determined for each size of plot by dividing the coefficient of variability of a unit sized plot of one vine by the square root of the number of unit sized plots (or vines) in the make-up of the plot in question. Thus a six-vine plot has a theoretical coefficient of variability of 33.4 per cent. $\div \sqrt{6}$ equals 13.6 per cent. It will be noted that there is excellent agreement between the curves for actual and theoretical coefficients of variability (A and B of Figure II.), the divergence of the figures for 5, 6, and 8-vine plots being attributable to the smaller number of observations available for computation of the coefficients. This interesting feature will be given detailed consideration in the latter portion of this article, and the total error shown in Table II., and graphed in Fig. II. will also be considered.

From the figures in Table II. it would seem desirable that plots should consist of eight vines. By increasing the size to this extent, it has been possible to decrease the coefficient of variability from 33.4 per cent. in the case of a single-vine plot to 8.7 per cent. in the case of the eight-vine plot, and 8.7 per cent. may be regarded as

TABLE II. — ACTUAL AND THEORETICAL CO-EFFICIENTS OF VARIABILITY FOR PLOTS OF VARIOUS SIZES.

Size of Plot (Number of Vines).	Random Variation.		Total Variation.*
	S.D.%, or Co-efficient of Variability.	Theoretical Value of Co-efficient of Variability.	S.D.%, or Co-efficient of Variability.
	%	%	%
1	33·4	..	43·4
2	22·8	22·9	35·0
3	19·2	19·3	32·1
4	17·2	16·7	31·7
5	18·5	14·9	31·5
6	11·4	13·6	29·3
8	8·7	11·8	28·2

* Total variation includes gradient as well as random variation.

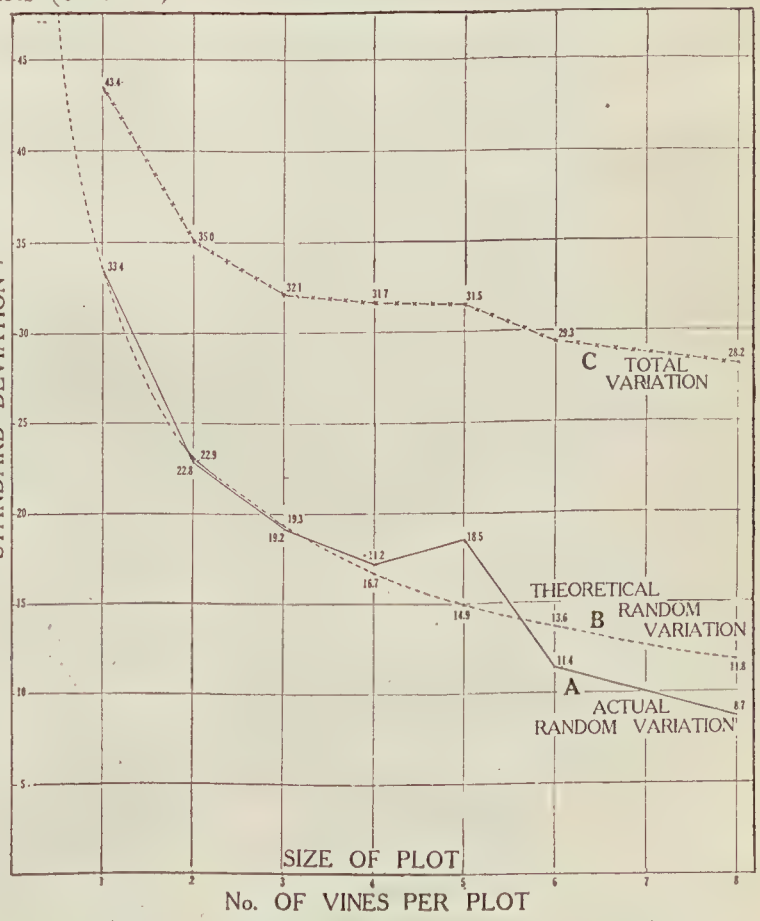


Fig. II. Showing actual and theoretical coefficients of variability for plots of various sizes.

a reasonably low figure. There are practical considerations which make it inadvisable, and, in fact, often impossible, to increase plot size beyond a certain point, and it may be justly concluded that, under the conditions of this trial, the optimum plot size is in the region of eight vines. Plots larger than this would be very unwieldy in an extensive field experiment.

Shape of Plot.

It was not possible in this trial to make any deductions regarding the effect on accuracy of varying plot shape, as the block of vines under consideration was not suitable for the formation of plots of various shapes. Recommendations as to the shape of plot have varied greatly, but the general consensus of opinion seems to favour long and narrow plots. Christidis (2) states that in no case can square plots be more uniform than long and narrow plots, and, moreover, that the best results are obtained when the length of the plot appoaches closely to the line of maximum soil gradient. Linear plots, arranged so that their length is in the line of maximum soil gradient, are generally subject to smaller error than square plots, because they traverse both high and low-yielding portions of the soil area.

In horticultural experiments, linear plots have the added advantage of facilitating cultural practices, such as picking, &c., and all observations, but other practical difficulties often outweigh these advantages. Generally it is necessary to have guard rows of trees or vines between adjacent plots. The requisite number of guards varies with the shape of the plot, and in the case of a nine-vine plot would be seven vines if the plot were square, and eleven vines if the plot were a single row of nine vines. This is an important consideration, and thus it is very rarely advisable or economical to use linear plots, as they necessitate many more guards than square plots.

From the foregoing it is apparent that the shape of plot in any horticultural experiment should be determined by a consideration of the demands or limitations of the particular experiment, and that no definite ruling in favour of either linear or square plots is possible.

Number of Replications.

The number of replications of any plot in a field experiment depends on two factors—firstly, the variability of the material (as measured by the coefficient of variability), and, secondly, on the size of the differences between treatments which are to be expected. Hoblyn (5) has drawn up a table (see Appendix I.) showing the effect of the coefficient of variability on the number of observations necessary to prove certain differences between two means. Reference to this table will show that with a coefficient of variability of 35 per cent. (approximately the figure for the vines under consideration), 98 separate observations (on a single-vine plot) would be necessary to prove a 10 per cent. difference between two treatments. To demonstrate a difference of 20 per cent., 25 replications would be necessary. By increasing the plot size from a single vine to eight vines, it has been shown that the coefficient of variability was reduced to 8.7 per cent. We may, therefore, assume that an eight-vine plot would have a coefficient of variability of approximately 10 per cent., and from the table, nine replications would be necessary to prove a difference of 10 per cent. In experiments where differences are expected to be of large degree, say 20 per cent., four replications of an eight-vine plot would be sufficient.

The foregoing deductions as to the size of plots and number of replications are applicable only to experiments which are to be arranged in such a manner that they may be subjected to an analysis of variance, i.e., experiments of the Randomised-Block or Latin Square type.

Hoblyn (5) has emphasized that the individual tree (or vine) is the only logical horticultural equivalent of the agricultural plot, and in an apple manurial experiment at East Malling, he has been able by an ingenious lay-out, to obtain single-tree units. These units, which are replicated eight times, will enable the demonstration of a 20 per cent. difference between the means of two sets of differently treated trees. This has been possible, however, only because the excellent work conducted on standardization of horticultural material at the East Malling Research Station has reduced the probable variation coefficient of individual trees to approximately 20 per cent. Until similar work has been carried out on fruit trees and vines in Australia, it is extremely unlikely that such uniform material will be available. As stated before, with a coefficient of variability of 33.4 per cent., single-vine plots would require 25 replications to prove a 20 per cent. difference. It is, therefore, impracticable with the material available to achieve the ideal of single-vine plots. Generally speaking, it may be inferred that a similar state of affairs exists in regard to all tree-fruits in Australia.

Part II.—A Discussion on the type of variation occurring in Uniformity Trials.

In Part I. it has been shown how the application of statistical methods to yield figures of the uniformity trial has made it possible to obtain a measure of the variation of the material. This variation may be termed the error of the given yield, and is used to indicate the significance of any observed differences between treatments or varieties in a field experiment. On the validity of this error as an estimate of the actual variation in the experiment solely depends the value of the conclusions derived therefrom.

Foremost among the pioneers of this sphere of work were Mercer and Hall, of Rothamsted, who, in their classic experiment in 1909 (6), obtained a measure of the variation in the yield of small plots of wheat and of mangels. From a study of the figures, they were enabled to recommend that the use of plots of a given size would give a certain variation, and, further, that by repeating these plots of the optimum size a given number of times, the variation of the mean yields so obtained would be reduced to a conveniently small figure. The error so obtained was a measure of the total variation shown by the yields of the plots, and although it was recognized that the total variation was composed of various parts, the authors were unable to suggest any method of evaluating or avoiding any such portions.

With the passing of time, a more intimate knowledge of this total variation was obtained, and methods were evolved whereby values could be assigned to the respective parts. The most satisfactory of such methods has been a type suggested by R. A. Fisher, of Rothamsted, and called by him the "Analysis of Variance" method (3); this method has been used in the vine uniformity trial above. The study of such an analysis of the different types of variation not only enables one to obtain a much clearer conception of the factors affecting the yields, but also modifies the conclusions obtained as to the best size of plot, and the number of replications to be used in any experiment in which certain differences between treatments are to be expected.

It has been shown that the total variation between the yields of individual vines in this trial are due to certain factors, which have been classified into, firstly, individual variation; and, secondly, variation due to environmental influences.

From another point of view, the factors of the total variation may be grouped into (*a*) the gradient or non-random type, including that due to defined soil gradients, hill slopes, drainage, &c., which affect the yield in a definite trend; and (*b*) the random type, due in the first case to small random soil differences, effect of diseases, pests, &c., and in the second to inherent genetical variation between plants.

By means of the analysis of variance we can definitely evaluate and subtract the non-random types (see Appendix), thus leaving the remaining error variation as due to the random types alone.

In Figure II. has been reproduced the total variation (represented by curve C) and the true random variation (represented by curve A) of the yields of various sized plots in this uniformity trial. Also included is the theoretical curve for random variation of plots of similar sizes. It is evident from a consideration of these curves that the application of the analysis of variance, by eliminating all but random variation, has considerably reduced the error attaching to plots. Thus if an experiment be designed in such a manner that analysis of variance can be applied to the results, we shall be able to demonstrate the significance of much smaller differences than would be possible had the total variance been used, or, alternatively, that a fewer number of replications would have served to demonstrate the same differences. Reference to Appendix I. will illustrate this point. A further point of interest is connected with the conclusions as to the best size of plot. From a consideration of the total variance graph, a plot of from three to five vines would appear to give the optimum reduction in error; the use of the random error graph, however, would lead to the conclusion that a plot of a much larger number of vines (in the region of eight vines) would be preferable.

It is also significant that the actual curve for random error agrees very closely with the theoretical curve. Now as shown previously, the theoretical curve is obtained from the equation—

$$\text{S.E. (of a plot of n units)} = \frac{\text{S.E. (of a unit plot)}}{\sqrt{n}}$$

or the same result may be obtained by calculating the error of a suitable number of the total yields of plots, which have been formed by grouping "n" unit plots selected at random from the whole area. Therefore the fact that the

actual curve agrees with the theoretical curve demonstrates that the yields of adjacent vines (which went to comprise the plots for the actual curve) show the same degree of variation as do the yields of vines selected at random from the whole area. In other words, adjacent single-vine plots do not show any correlation in yield with each other. This is borne out by the figures for correlation (measured by the "product-moment" method), which are—

Correlation between adjacent single-vine plots (vine uniformity trial).

In a S.E.-N.W. direction r=.239±.063.
In a S.W.-N.E. direction r=.302±.061.

In order to demonstrate better the significance of this lack of correlation between adjacent vines, reference will be made to similar treatment of the figures relating to a wheat uniformity trial conducted at Werribee, Victoria, in 1926 (7). The data are presented in Figure III. Here, again, the application of the analysis of variance has reduced considerably the error attaching to the experiment, and similar remarks as to the number of replications and the degree of significant differences hold as in the case of the vine trial. The criticisms as to the optimum size of plot apparently do not apply with the same force here as in the vine graph, since a plot of from 1-40th to 1-30th of an acre gives the optimum reduction of the error for both types of variance.

However, there is one important difference between the sets of graphs. In the vine trial the curve for the actual error of random variation agrees within the limits of its error with the theoretical curve. In the case of the wheat trial, the curve for the actual error is definitely above the theoretical curve. We are forced to the conclusion, therefore, with regard to the wheat plots that, since the actual error is larger than the theoretical, the adjacent unit plots which go to form the larger plots, must tend to be similar in yield, those of low comparative yield tending to be surrounded by those of low yields. We might expect, therefore, that adjacent plots would show a fairly high degree of correlation. Again, the actual figures for correlation bear this conclusion out—

Correlation between adjacent plots (wheat uniformity trial).

In an E.W. direction r=.468±.043.
In a N.S. direction r=.764±.023.

The fact is then established that there is little correlation between adjacent unit-sized

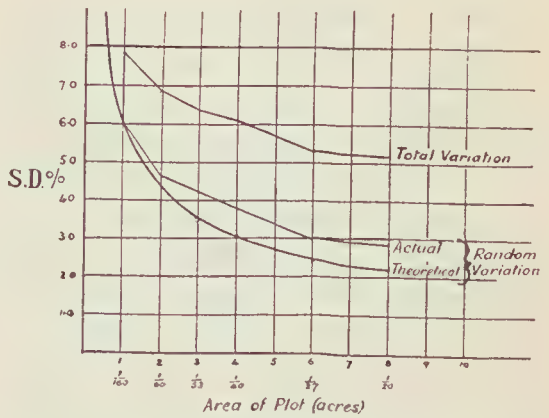


Fig. III.—Showing actual and theoretical coefficients of variability for plots of various sizes in the Wheat Uniformity Trial.

plots in the vines (i.e., single vines), but a fairly high degree of correlation in the case of the unit sized wheat plots. This knowledge has its repercussions on the type of trial which may be used in an experiment on such material. For instance, the use of "Student's" table for the calculation of odds from a set of Beaven paired trials is based on a correlation between adjacent plots, so that while its use is justified in the case of the wheat plots, a similar application to vines would lead to a false conception of the significance of a given difference. A better method of testing the variety or treatment under consideration would be by their incorporation in a "Randomised Block" design of plots. The application of Fisher's analysis of variance would then give a more correct idea of the error.

The underlying reasons behind the difference in correlation between the single-vine plots and the unit 1-160th acre wheat plots are probably to be found in the relation of the components of the random variation to each other. It has been pointed out that the random error is composed of two types —(1) that due to random soil, climate, &c., and (2) that due to inherent genetical variation between plants.

The former type is generally of such a nature that it will affect adjacent small plots of wheat or vines in a similar manner, while the latter will tend in an opposite direction, and cause adjacent small plots to have widely differing yields. In the case of the wheat plots, the large number of individual plants in any single plot of 1-160th acre (about 4,500) will reduce the variation due to the second part to a very small amount, thus leaving the former type as

the major constituent of the total random variation. We might expect, therefore, that adjacent plots would have similar yields and show a definite degree of correlation. In the case of the vines, however, the yield of a single plot (containing only one single vine) is more largely influenced by the individual variation of each vine, and we find, therefore, that the correlation between adjacent plots is considerably lower.

Summary.

(1) During the vintage of 1930, the yields of the individual vines from a block of commercial vines on the Viticultural Station, Rutherglen, were recorded. The yields varied from 1.5 lb. to 16.5 lb.

(2) The graph of the frequencies of the yields was found to agree satisfactorily with the normal curve of error.

(3) It was shown that the variation in the yields was due to two causes—(*a*) the inherent individual variation between vine and vine (a random type of variation), and (*b*) that due to external factors of soil, climate, disease, &c. This latter variation may be of two types—(1) that due to soil trends or gradients, and (2) that due to random causes of soil patches, disease effects, &c.

(4) After determining gradient variations by the application of the "analysis of variance," the "error" of the yields due to random variations alone was obtained. The mean yield of a unit-sized plot of one vine was found to be 5.95 lb., and the Standard Deviation of a single-vine plot was 1.99 lb. The S. D. per cent., or Coefficient of Variability was found to be 33.4 per cent.

(5) The optimum size of plot was found to be in the region of eight vines per plot.

(6) Practical considerations of the number of guard rows required indicated that square plots were desirable.

(7) With plots of eight vines, differences between treatments in the region of 10 per cent. could be demonstrated by nine replications; the larger differences of the order of 20 per cent. could be shown with four replications of an ultimate plot.

(8) A comparison was made with the deductions as to size of plot and number of replications that would have been obtained had the S. D. of the total variation of the yields been used.

(9) Comparisons of the S. D. in this trial were made with those obtained in a wheat uniformity trial. Whereas in this trial the theoretical curve agreed with the actual curve obtained, in the case of wheat plots the actual S. Ds. obtained were always higher than those expected from theoretical considerations.

(10) It was shown that this difference in the behaviour of the S. D. curve in the two cases was due to the fact that a high correlation between adjacent plots existed in the case of the wheat trials, while a low correlation existed in the case of the vines.

(11) It is suggested that this difference between the vine and the wheat plots is due to the fact that in the case of vines the inherent variation is of equal and possibly of greater importance than the random soil variation. In the case of wheat, the large number of plants per unit plot reduces the inherent variation to such an extent that the random soil variation forms the major portion of the yield variation.

Acknowledgments.

The authors are greatly indebted to Mr. M. Cronin, late manager of the Viticultural Station, Rutherglen, for his assistance in securing the field data.

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APPENDIX I.

TABLE SHOWING THE EFFECT OF COEFFICIENT OF VARIABILITY ON THE NUMBER OF OBSERVATIONS NECESSARY TO PROVE CERTAIN DIFFERENCES BETWEEN TWO MEANS [Hoblyn (5)].

Difference per cent.	Co-efficient of Variability (V.).								
	10.	15.	20.	25.	30.	35.	40.	45.	50.
10	9	18	32	50	72	98	128	165	200
20	4	6	8	12	18	25	32	41	50
30	3	4	5	6	8	11	14	18	22
40	2	3	4	4	5	6	8	10	13
50	2	2	3	3	4	4	5	7	8

APPENDIX II.

VINE UNIFORMITY TRIAL, RUTHERGLEN, 1930.

Variance of Unit-sized Plots of Single Vines.

Yields of Vines in lb.

5½	4½	5½	7	6½	29
5½	6½	4½	7½	4	28
2½	5	6	5½	4	23
5½	5½	2½	5½	7½	26½
2½	3½	5½	6	4½	22
3½	7½	8½	7½	16½	43½
4½	6½	4	5½	11½	32
4½	3½	4½	6	10	28½
2½	8½	5	10½	9½	36
4½	4½	7½	4½	8½	29½
3½	5½	2½	7½	8½	27½
5½	3½	6	5½	11½	32
3½	8½	9½	4½	3	29
3	5½	4½	4	7	24
5	5½	4½	5½	11	31½
4½	4	4½	7½	9	29½
3½	3½	2½	5½	6½	21½
1½	2	6½	6½	12½	29
4½	6½	2½	5½	6½	25½
3½	3½	6½	6½	11½	31½
3	9½	6½	5½	13½	38
5½	6½	7	6½	10	35½
5½	7½	7½	5½	9½	35½
3½	5½	1½	6½	7½	24½
1½	6½	5½	8	9	30½
98	139	131	156	219	743

Mean = 5·95

Sums of Squares.

Due to—

Rows /22735·50 ÷5 4547·10 Subtract 4416·39 = 130·71

Columns /118383·00 ÷25 4735·32 Subtract 4416·39 = 318·93

Total /5245·00 = 4416·39 = 828·61

Analysis of Variance.

	Degrees of Freedom.	Sums of Squares.	Mean Square.
Due to—			
Rows	24	130·71	5·45
Columns ..	4	318·93	79·73
Remainder ..	96	378·97	3·95
Total ..	124	828·61	6·68

S.E. of a single plot = $\sqrt{3·95}$ = 1·99 = 33·4%

[Total variation, ignoring row and column variation, S.E. of a single plot = $\sqrt{6·68}$ = 2·58 = 43·4%]

Variance of Two-unit Plots, formed by the Combination of two Vines.

(Down the columns.)

Analysis of Variance.

	Degrees of Freedom.	Sums of Squares.	Mean Square.
Due to—			
Rows ..	11	101·41	9·22
Columns ..	4	590·96	147·74
Remainder ..	44	321·44	7·31
Total ..	59	1013·81	17·18

S.E. of a single plot = $\sqrt{7·31}$ = 2·71 = 22·8%

[Total variation, ignoring row and column variation, S.E. single plot = $\sqrt{17·18}$ = 4·15 = 35·0%]

Variance of Three-Unit Plots, formed by the Combination of Three Vines.

(Down the columns.)

Analysis of Variance.

	Degrees of Freedom.	Sums of Squares.	Mean Square.
Due to—			
Rows	7	66·14	9·45
Columns	4	886·43	221·61
Remainder ..	28	327·77	11·74
Total ..	39	1280·34	32·83

S.E. of a single plot = $\sqrt{11·74}$ = 3·42 = 19·2%

[Total variation, ignoring row and column variation, S.E. single plot = $\sqrt{32·83}$ = 5·73 = 32·1%]

Variance of Four-unit Plots formed by the Combination of Four Vines.

(Down the columns.)

Analysis of Variance.

—	Degrees of Freedom.	Sums of Squares.	Mean Square.
Due to—			
Rows	5	121·68	24·34
Columns ..	4	1181·92	295·48
Remainder ..	20	334·28	16·71
Total ..	29	1637·88	56·48

S.E. of a single plot = $\sqrt{16 \cdot 71} = 4 \cdot 09 = 17 \cdot 2\%$

[Total variation, ignoring row and column variation, S.E. single plot = $\sqrt{56 \cdot 48} = 7 \cdot 52 = 31 \cdot 7\%$]

Variance of Five-unit Plots, formed by the Combination of Five Vines.

(Down the columns.)

Analysis of Variance.

—	Degrees of Freedom.	Sums of Squares.	Mean Square.
Due to—			
Rows	4	222·34	55·59
Columns ..	4	1594·64	398·66
Remainder ..	16	483·56	30·22
Total ..	24	2300·54	87·52

S.E. of a single plot = $\sqrt{30 \cdot 22} = 5 \cdot 50 = 18 \cdot 5\%$

[Total variation, ignoring row and column variation, S.E. single plot = $\sqrt{87 \cdot 52} = 9 \cdot 35 = 31 \cdot 5\%$]

Variance of Six-unit Plots formed by the Combination of Six Vines.

(Down the columns.)

Analysis of Variance.

—	Degrees of Freedom.	Sums of Squares.	Mean Square.
Due to—			
Rows ..	3	86·14	28·71
Columns ..	4	1772·88	443·22
Remainder ..	12	196·42	16·37
Total ..	19	2055·44	108·18

S.E. of a single plot = $\sqrt{16 \cdot 37} = 4 \cdot 04 = 11 \cdot 4\%$)

[Total variation, ignoring row and column variation, S.E. single plot = $\sqrt{108 \cdot 18} = 10 \cdot 4 = 29 \cdot 3\%$]

Variance of Eight-unit Plots, formed by the Combination of Eight Vines.

(Down the columns.)

Analysis of Variance.

—	Degrees of Freedom.	Sums of Squares.	Mean Square.
Due to—			
Rows	2	7·90	3·95
Columns ..	4	2363·83	565·96
Remainder ..	8	135·77	16·97
Total ..	14	2507·50	179·11

S.E. of a single plot = $\sqrt{16 \cdot 97} = 4 \cdot 12 = 8 \cdot 7\%$

[Total variation, ignoring row and column variation, S.E. single plot = $\sqrt{179 \cdot 11} = 13 \cdot 4 = 28 \cdot 2\%$]

Standard Herd Records

For Quarter ended 30th September, 1932

In the following is set out the records of all cows which completed a lactation during the quarter. The number is 675, of which 480 qualified for the certificate. The figure in brackets after the owner's name shows the number of entries that qualified for the certificate.

The amount of butter fat required for qualification varies according to the age of the animal (up to 5 years at time of calving), the standards being as follow :—

Junior 2 year old (under 2½ years at time of calving)	200 lb. butter fat.
Senior 2 year old (between 2½ and 3 years at time of calving)	225 lb. butter fat.
Junior 3 year old (between 3 and 3½ years at time of calving)	250 lb. butter fat.
Senior 3 year old (between 3½ and 4 years at time of calving)	275 lb. butter fat.
Junior 4 year old (between 4 and 4½ years at time of calving)	300 lb. butter fat.
Senior 4 year old (betw en 4½ and 5 years at time of calving)	325 lb. butter fat.
Mature cow 5 years and over	350 lb. butter fat.

(Except where otherwise stated, the period of Test was 273 days.)

Name of Cow.	Herd Book No.	Date of Calving.	Milk last day.	Milk.	Average Test.	Butter Fat.	Standard required.	Class.	Order of Merit.	Previous Yields of Butter Fat.	Sire.
Allan, A., Tynong, Jersey (0).											
Aveley Lillian	22951	1.10.31	15½	6,581	4·99	328·53	350	Mature	..	319, 314, 269	Marc Antony of Aveley
Burnside Melody ..	16937	18.11.31	12½	7,365	4·69	345·70	350	Mature	..	303, 286, 333	Molly's Twylish of Banyule
Allan, F. de V., Toora, Jersey (1).											
Bruce Vale Island Madeira	33122	20.11.31	14	6,420	5·13	329·13	270	Jr. 3	..	.. ..	Masterpiece of Bruce Vale
Allwood, A., Stanhope, Friesian (2).											
Tarrangower Countess Helen	App. 4, Vol. 10	27.10.31	31½	16,137	3·21	517·67	330	Sr. 4	..	451 ..	Strathardle Count Abbekerk
Tarrangower Countess Jessica	App. 4, Vol. 10	12.11.31	47	17,150	3·56	609·98	330	Sr. 4	..	525 ..	Strathardle Count Abbekerk
Alston, N. B., Romsey, Jersey (4).											
*Rosyth Lady Rose ..	26378	1.10.31	4	6,585	5·45	359·04	350	Mature	..	305, 375, 378	Lord 2nd of Bruce Vale
Aberdour Romany Rose	26376	22.10.31	15	7,835	6·0	447·09	350	Mature	..	391, 412, 434	Lord 2nd of Bruce Vale
Rosyth Lady Rosleaf ..	32875	4.11.31	10½	5,844	5·40	315·49	270	Jr. 3	..	255 ..	Lord 2nd of Bruce Vale
Rosyth Meadow Sweet 2nd	32877	5.11.31	10½	6,671	4·36	290·78	250	Sr. 2	..	234 ..	Rosyth Cream Socks
Anderson, J., Lyndhurst, Jersey (2).											
Canary 19th of King's Vale	18598	6.10.31	11	6,324	4·92	310·99	350	Mature	..	291, 321, 260 301	Rosella's Thorn of King's Vale
King's Vale Viola 8th ..	28379	18.10.31	12	5,880	5·11	300·52	250	Sr. 2	..	233 ..	Linda 55th V.C. of King's Vale
King's Vale Brunette 23rd	24205	13.11.31	19½	6,684	5·43	362·93	350	Mature	..	262, 267, 311	Linda 55th V.C. of King's Vale
*King's Vale Rose 4th ..	32882	19.11.31	4	3,525	4·95	174·65	230	Jr. 2	..	.. ..	Linda 55th V.C. of King's Vale
Archibald, L. R., Tongala, Jersey (1).											
Wompini Vanilla ..	24605	4.10.31	26½	9,687	5·33	515·97	350	Mature	..	334, 444 ..	Werribee Masterman
Armstrong, W. J., Somerville, Jersey (2).											
Wompini Margaret ..	24602	10.11.31	16	6,909	5·58	385·63	350	Mature	..	380 ..	Werribee Masterman
Glenone Princess ..	32890	18.12.31	N.O.C.	5,154	4·90	252·41	250	Sr. 2	..	.. ..	Somerville Reputation
Atherton, W. H., Murraydale, Jersey (3).											
Wattle Bloom of Beverley	18611	29.9.31	17	8,195	4·73	387·79	350	Mature	..	329, 343, 350, 329, 390	Rosella's Lad of King's Vale
Beverley Cream Lassie 3rd	32895	1.11.31	13	4,838	4·85	234·55	230	Jr. 2	..	.. ..	Banyule Remon
Beverley Cream Lassie 4th	32896	1.11.31	11½	4,623	5·72	264·64	230	Jr. 2	..	.. ..	Rosella's Lad of King's Vale

* 240 days in test.

Name of Cow.	Herd Book No.	Date of Calving.	Milk last day.	Milk.	Average Test.	Butter Fat.	Standard required.	Class.	Order of Merit.	Previous Yields of Butter Fat.	Sire.
Atkinson, W. K., Swan Hill, Dairy Shorthorn (5).											
Willow Park Jessie ..	Vol. 1 D.S.H.	1.10.31	23	10,688	3·84	409·94	350	Mature	..	305, 265, 344, 359, 422, 475, 429	Havelock of Darbalara
Willow Park Countess 8th	Vol. 1, D.S.H.	3.10.31	17	6,414	4·06	260·24	230	Jr. 2	..	.. ..	Willow Park Eminent
Willow Park Cherry ..	Vol. 1, D.S.H.	9.10.31	36½	14,147	3·89	550·55	350	Mature	..	325, 474, 636, 597, 623, 686, 630, 737, 727	Havelock of Darbalara
Willow Park Queenie 15th	Vol. 1, D.S.H.	19.10.31	22	10,797	4·03	435·33	330	Sr. 4	..	362, 387 ..	Willow Park Reliance
Willow Park Princess 5th	Vol. 1, D.S.H.	2.11.31	12½	11,571	4·29	495·98	350	Mature	..	293, 338, 424, 476, 510	Willow Park Reliance
Willow Park Comet 6th ..	Vol. 1, D.S.H.	29.11.31	15	5,582	4·07	226·99	230	Jr. 2	..	.. ..	Willow Park Eminent
Axford, W., Camperdown, Jersey (10).											
Leura Silverbelle 7th ..	..	8.10.31	18	5,591	5·55	310·46	230	Jr. 2	..	.. ..	Admiral of Leura
Leura Beauty 3rd ..	24230	12.10.31	22	8,100	5·56	450·36	350	Mature	..	323, 377 ..	Grant of Melrose
Leura Patricia 6th ..	..	18.10.31	20	5,586	6·62	369·91	230	Jr. 2	..	.. ..	Admiral of Leura
Springvale Maisie ..	25248	19.10.31	30	8,508	5·47	465·81	330	Sr. 4	..	312 ..	Conqueror of Somerville
Leura Lady Elector 3rd ..	24236	20.10.31	30	9,491	5·81	551·50	350	Mature	..	333, 382 ..	Admiral of Leura
Leura Patricia 7th ..	..	22.10.31	11½	4,895	6·02	294·69	230	Jr. 2	..	.. ..	Admiral of Leura
Leura Carmen	25237	25.10.31	11½	6,575	5·32	349·83	310	Jr. 4	..	291 ..	Grant of Melrose
Leura May 7th ..	..	30.10.31	30	8,231	5·40	444·27	230	Jr. 2	..	.. ..	Curiosity's King of Comely Banks
Leura Myrtle 2nd ..	25243	3.11.31	18	6,699	5·04	337·65	310	Jr. 4	..	.. ..	Grant of Melrose
Leura Monitress 2nd ..	28864	4.11.31	22	6,542	5·76	376·73	270	Jr. 3	..	.. ..	Curiosity's King of Comely Banks
Ballarat Orphanage, Ballarat, Jersey (3).											
Tavistock Lady 3rd ..	22967	30.9.31	17	6,879	5·61	386·15	350	Mature	..	244, 300 ..	Audrey's Prince of Banyule
Orphanage V.C. Molly ..	Vol. 19	20.10.31	19½	7,815	4·70	366·93	230	Jr. 2	..	.. ..	Wompini V.C.
Tavistock Audrey's Molly 2nd	22966	20.11.31	17	7,915	5·26	415·96	350	Mature	..	237, 344, 295	Audrey's Prince of Banyule
Barrett, J. W., Trafalgar, Ayrshire (0).											
*Fairlawn Veronica ..	14325	4.11.31	4	6,630	3·96	262·58	350	Mature	..	234 ..	Wylie of Oakbank
†Fairlawn Pride ..	14323	13.11.31	4	4,800	3·89	186·55	350	Mature	..	286 ..	Wylie of Oakbank
Bassett-Smith, C., Kyabram, Red Poll (1).											
Flowing Vale Astroletta*	2382A	3.11.31	4	7,695	4·69	360·94	350	Mature	..	271, 316 ..	Dinkum Astrologer
Woodburn Sweet Pear ..	2120AA	22.11.31	5½	6,060	3·82	231·35	310	Jr. 4	..	.. ..	Woodburn Paragon
‡Victoria Cutty Spark ..	1756B	24.11.31	4	7,575	4·15	314·52	350	Mature	..	401, 393, 333	Victoria Volcano
Belfield, G. H., Coleraine, Jersey (1).											
Wootong Vale Golden Beauty	21115	14.12.31	26	10,199	4·67	475·81	350	Mature	..	472, 448 ..	Gold Prince of Clover Flat
Black, Mrs. A. J., Noorat, Jersey (4).											
Noorat Gwen	32991	9.10.31	16½	5,728	6·02	344·69	230	Jr. 2	..	.. ..	Cellist of Warenda
Noorat Minuet ..	25270	24.10.31	10	6,115	4·82	294·65	290	Sr. 3	..	.. ..	Cellist of Warenda
Noorat Geraldine ..	32989	26.10.31	17	6,953	4·69	326·34	230	Jr. 2	..	.. ..	Cellist of Warenda
Noorat Cello	25265	18.11.31	15½	6,210	5·17	321·16	290	Sr. 3	..	269 ..	Cellist of Warenda
Black, I. S., Noorat, Ayrshire (1).											
Mount Noorat Boronia ..	20554	7.10.31	9½	9,339	3·88	332·52	270	Jr. 3	..	275 ..	Scottish Fame of Gowrie Park
Bolton, S., Mannerim, Jersey (2).											
Glen Mavis Noble Dawn	28472	4.10.31	15	5,751	5·45	313·30	250	Sr. 2	..	254 ..	Banyule Plant
Annie of Enterprize ..	21145	31.10.31	21	8,726	4·97	433·97	350	Mature	..	248, 347, 359, 383	Royal Gem of Somerville
Box, Dr. J., Noojee Farm, Jersey (0).											
‡Toorongo Muriel ..	28480	23.10.31	4	4,335	4·62	200·37	250	Sr. 2	..	179 ..	Werribee Fancy Masterpiece
‡Toorongo Twylish Queen	33011	20.11.31	4	3,030	4·74	143·61	230	Jr. 2	..	.. ..	Toorongo Mercedes King
Box, Dr. J., Whittlesea Farm, Jersey (1).											
Queen of Avalon ..	12867	2.11.31	9½	5,887	5·79	329·06	350	Mature	..	214, 306 ..	Maiden's Defender of Koorawatha
Toorongo Princess Jessie	28481	3.11.31	8	5,520	6·42	354·223	290	Sr. 3	..	304 ..	Sunset of Melrose

* 210 days in test. † 180 days in test. ‡ 240 days in test.

Name of Cow.	Herd Book No.	Date of Calving.	Milk last day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Class.	Order of Merit.	Previous Yields of Butter Fat.	Sire.
Broad, A. A., Sutton Grange, Jersey (5).											
Grangelea Roseleaf 2nd	26394	29.9.31	23	8,633	5·27	455·07	290	Sr. 3	..	305, 384 ..	Mistletoe's 2nd V.C. of Tarnpirr
Daffodil of Grangelea ..	18648	1.10.31	26½	9,579	5·40	517·48	350	Mature	..	433, 500, 500, 501	Mistletoe's 2nd V.C. of Tarnpirr
Grangelea Primrose 2nd	26392	8.10.31	23½	8,295	5·17	428·93	290	Sr. 3	..	318, 401 ..	Mistletoe's 2nd V.C. of Tarnpirr
Grangelea Dawn ..	33037	9.10.31	14½	4,953	6·19	306·66	230	Jr. 2	..	.. ..	Banyule Macon
Grangelea Primrose ..	23007	25.12.31	31	8,540	5·44	464·72	350	Mature	..	370, 462, 459, 473	Mistletoe's 2nd V.C. of Tarnpirr
Brock, R. L., Trafalgar, Jersey (2).											
Strathview Silverthrush ..		28.9.31	18	6,242	5·34	333·38	230	Jr. 2	..	.. ..	Pat of Belgonia
Strathview Lady ..	..	23.10.31	15	5,762	5·46	314·43	230	Jr. 2	..	.. ..	Pat of Belgonia
Buchanan, J., Flinders, Ayrshire (0).											
Gleneira Hawthorn ..	20131	12.10.31	4½	6,785	4·27	289·80	310	Jr. 4	..	271 ..	Algie of Oakbank
Gleneira Lapstone ..	22837	14.10.31	11½	6,265	3·55	222·64	230	Jr. 2	..	.. ..	Gleneira Knight
Gleneira Lisp	23844	15.10.31	5½	4,283	3·88	165·98	230	Jr. 2	..	.. ..	Gleneira Desmond
Butcher, F. T., Murraydale, Red Poll (1).											
Maryville Eve	25066	13.12.31	11½	7,385	4·90	361·84	270	Jr. 3	..	355 ..	Victoria King Bird
Caldwell, J., Glen Alvie, Jersey (1).											
*Round Hill Kitty 2nd's Lady	33065	6.10.31	4	3,915	5·49	215·07	270	Jr. 3	..	.. ..	Kathleen's Noble of Round Hill
Round Hill Rose ..	33068	20.10.31	11	4,260	5·52	235·34	230	Jr. 2	..	.. ..	Cosma's Prince
Round Hill Stumpy 2nd's Princess	23017	22.11.31	17	5,858	5·12	299·76	350	Mature	..	.. ..	Retford Deer's Noble
Cameron, D., and Sons, Valencia Creek, Jersey (4).											
Werribee Fancy Starbright 2nd	17716	31.10.31	31½	11,409	4·58	522·71	350	Mature	..	351, 428, 436, 449	Sir Fancy's Madeira of Werribee
Studleigh Harebell 7th ..	..	12.12.31	13	4,986	5·86	292·29	230	Jr. 2	..	.. ..	Studleigh Masterpiece
Studleigh Duchess 3rd ..	25289	13.12.31	16	7,262	6·18	448·74	330	Sr. 4	..	314, 434, 445	Lord 5th of Bruce Vale
Studleigh Master's Cream	..	13.12.31	12	5,270	5·87	309·48	230	Jr.	..	.. ..	Studleigh Masterpiece
Cayley, W. C., Werribee, Ayrshire (2).											
†Joy Queen of Riversdale	13304	20.10.31	..	10,485	3·94	413·31	350	Mature	..	310, 396, 414, 514, 603	Beauty's Pride of Retreat
*Riversdale Jazz Queen ..	23201	23.10.31	..	6,008	3·97	238·26	230	Jr. 2	..	.. ..	Hotstuff of Sparrovale
Charlton, J., Stoney Creek, Jersey (2).											
Lumeah Lilac	33109	29.9.31	15	5,502	4·66	256·39	230	Jr. 2	..	.. ..	Burnside Invincible
Lumeah Columbine ..	33105	6.11.31	17½	6,492	5·21	338·45	230	Jr. 2	..	.. ..	Burnside Invincible
Chester, E. L., Mt. Scobie, Jersey (2).											
*Holmlea Myrtle ..	28542	25.10.31	4	5,625	5·56	312·68	290	Sr. 3	..	234, 283 ..	Ballara Victor 2nd
Ballara Lady	23022	6.12.31	16	6,770	5·32	360·24	330	Sr. 4	..	352 ..	Werribee Madeira's Cream Masterpiece
Chirnside, R. M., Whittlesea, Jersey (5).											
Mornmoot Marjory 2nd	33129	3.10.31	16	6,491	5·74	372·48	230	Jr. 2	..	.. ..	Choirmaster of Banyule
Mornmoot Melody ..	28558	10.10.31	22½	9,003	6·67	600·12	270	Jr. 3	..	425 ..	Clovelly Sun King
Mornmoot Myth ..	33141	20.10.31	29	8,797	4·95	435·71	230	Jr. 2	..	.. ..	Choirmaster of Banyule
Mornmoot May 2nd ..	33131	6.12.31	17½	6,028	6·02	362·66	230	Jr. 2	..	.. ..	Choirmaster of Banyule
Bruce Vale Fancy Madeira 2nd	25801	26.12.31	27	8,042	6·39	514·15	330	Sr. 4	..	358, 424 ..	Masterpiece of Bruce Vale
Chitty, C., Kernot, Jersey (1).											
Ewelme Golden Dawn ..	28563	7.11.31	17½	6,833	5·57	380·39	290	Sr. 3	..	340, 380 ..	Northern Master of Glen Iris
Clark, P. W., Whittlesea, Jersey (1).											
Coodardy Gloria ..	33167	26.10.31	18½	7,144	6·31	450·72	270	Jr. 3	..	349 ..	Laane Lad Twylish
Clyne, J., Upper Maffra West, Jersey (13).											
Paisley Caroline ..	25322	28.9.31	18½	6,781	5·78	391·78	310	Jr. 4	..	299, 315 ..	Monopole of Belgonia
Paisley Laura	..	8.10.31	17	6,293	4·73	299·79	230	Jr. 2	..	.. ..	Paisley Monopole
Paisley Flower ..	28581	16.10.31	6½	5,310	5·73	304·20	270	Jr. 3	..	285 ..	Sweet Boy of Elouera
Fuchsia 2nd of Swansea	21190	16.10.31	10½	6,966	5·49	382·52	350	Mature	..	230, 398, 342, 355	Prince of Belgonia
Paisley Bonnie ..	..	18.10.31	12½	6,986	4·89	341·47	250	Sr. 2	..	280 ..	Werribee Masterkey
Werribee Fancy Madeira 4th	25800	23.10.31	18½	8,555	5·81	497·09	350	Mature	..	371, 471, 499	Masterpiece
Paisley Foxglove ..	..	31.10.31	13	6,167	6·07	374·13	270	Jr. 3	..	301 ..	Paisley Boy
Paisley Colleen ..	..	10.11.31	16½	5,720	6·03	344·70	230	Jr. 2	..	.. ..	Werribee Masterkey
Jersey Vale Verbena ..	25321	12.11.31	18	7,193	5·00	359·54	310	Jr. 4	..	275, 365 ..	Princess 2nd's Twylish of Grangelea
Jersey Vale Marigold ..	25317	14.11.31	21½	8,240	4·86	400·48	350	Mature	..	276, 405 ..	Princess 2nd's Twylish of Grangelea
Paisley Miss Petal ..	33177	8.12.31	24	7,494	4·99	374·14	270	Jr. 3	..	268 ..	Werribee Masterkey
Swansea Fuchsia 3rd ..	24299	9.12.31	17	7,388	5·28	389·94	350	Mature	..	316, 399, 386	Prince of Belgonia
Paisley Mistletoe ..	25325	10.12.31	23	8,852	4·90	424·14	330	Sr. 4	..	331, 355 ..	Prince of Swansea
Lassie of Elouera ..	12236	24.12.31	..	6,251	5·50	343·63	350	Mature	..	401, 409, 389, 417, 411, 308	Lily's Lad of Holmwood

* 240 days in test. † 240 days herd withdrawn.

Name of Cow.	Herd Book No.	Date of Calving.	Milk last day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Class.	Merit.	Previous Yields of Butter Fat.	Sire
Cockbill Bros., Bacchus Marsh, Ayrshire (5).											
Fulham Goodyear ..	17935	29.9.31	5½	5,678	4·35	247·10	290	Sr. 3	..	299, 217 ..	Fulham Future
Fulham Vaneer ..	17939	13.10.31	12½	6,548	4·21	275·36	290	Sr. 3	..	.. ..	Fulham Future
Fulham Violet ..	17941	26.10.31	16½	9,500	4·28	406·13	310	Jr. 4	..	243, 330 ..	The Laird of Sparrovale
Fulham Virtue ..	13340	27.10.31	18½	10,583	4·01	423·88	350	Mature	..	323, 342, 360	His Majesty of Wethersdane
Fulham Flora	20021	12.11.31	N.O.C.	7,161	4·95	354·17	250	Sr. 2	..	290 ..	Fulham Future
Fulham Verona ..	22751	25.11.31	16½	5,838	4·53	264·67	230	Jr. 2	..	.. ..	The Laird of Sparrovale
Fulham Vision ..	14650	28.11.31	16	7,293	4·15	303·02	350	Mature	..	322, 296, 347	Fulham Future
Frolic 2nd of Warrook ..	9176	29.11.31	21½	10,265	3·60	369·75	350	Mature	..	.. ..	Lena's Frederick
Fulham Ada	17931	25.12.31	15	6,948	3·82	265·57	310	Jr. 4	..	275, 276 ..	Fulham Future
Cockbill Bros., Rockbank, Ayrshire (4).											
Fulham Alice	21424	30.9.31	16½	5,579	4·64	258·89	230	Jr. 2	..	.. ..	The Laird of Sparrovale
*Fulham Twinkie ..	21432	2.10.31	4	2,730	4·94	134·73	230	Jr. 2	..	.. ..	The Laird of Sparrovale
†Fulham Bessie ..	21425	8.10.31	4	2,775	4·78	132·66	230	Jr. 2	..	.. ..	The Laird of Sparrovale
Fulham Gertie	21428	18.10.31	7	4,025	5·20	209·24	230	Jr. 2	..	.. ..	Fulham Victory
Fulham Modest ..	20026	24.10.31	11	5,838	4·81	280·95	270	Jr. 3	..	246 ..	Fulham Future
Fulham Constance ..	20020	25.10.31	13½	6,057	4·55	275·31	250	Sr. 2	..	233 ..	The Laird of Sparrovale
Fulham Bona	20018	1.11.31	14½	7,121	4·74	337·45	270	Jr. 3	..	327 ..	The Laird of Sparrovale
Cockbill Bros., Tongala, Ayrshire (1).											
Fulham May	20025	6.10.31	10..	5,841	4·86	283·95	270	Jr. 3	..	199 ..	Fulham Future
Fulham Beauty ..	10902	15.10.31	7½	6,401	3·21	205·20	350	Mature	..	225, 325, 266, 227, 264, 188	His Majesty of Wethersdane
Fulham Alison ..	20017	25.10.31	12½	5,594	4·13	231·11	270	Jr. 3	..	195 ..	The Laird of Sparrovale
Fulham Louise ..	20023	4.11.31	12½	4,871	4·18	203·50	270	Jr. 3	..	235 ..	The Laird of Sparrovale
Fulham Lucy	13335	4.12.31	6½	5,214	3·81	198·65	350	Mature	..	273, 255, 190, 190, 228, 197	His Majesty of Wethersdane
‡Fulham Laura ..	20022	19.12.31	4	3,240	4·05	131·17	270	Jr. 3	..	.. ..	The Laird of Sparrovale
Coombes, T. A. P., Tongala, Jersey (2).											
§ Ivinghoe Patricia 2nd ..	28597	29.9.31	4	5,190	4·54	235·49	290	Sr. 3	..	203, 271 ..	Mate of Belgonia
Beverley Rarity 5th ..	32899	27.11.31	11½	5,097	5·94	302·72	230	Jr. 2	..	.. ..	Rosella's Lad of King's Vale
Beverley Cream Lassie ..	25730	28.12.31	20	6,048	5·20	314·60	310	Jr. 4	..	219, 264 ..	Rosella's Lad of King's Vale
Cooper, H. A., Trafalgar, Jersey (2).											
Glenlock Silver Maid		10.11.31	17	6,554	5·68	372·52	230	Jr. 2	..	.. ..	Concentration of Banyule
Glenlock Vasilika		12.12.31	17½	5,862	5·75	336·99	230	Jr. 2	..	.. ..	Concentration of Banyule
Coughlan, E., Walwa, Jersey (1).											
Banyule Silvermine 51st..	25469	4.10.31	11	6,888	5·12	352·91	290	Sr. 3	..	.. ..	Hoik of Banyule
Cox, Albury, Kyabram, Jersey (11).											
Tavistock Rosalie		28.10.31	15½	6,156	5·79	356·21	230	Jr. 2	..	.. ..	Moorella Ranger
Tavistock Hope		30.10.31	17½	6,059	5·24	317·67	230	Jr. 2	..	.. ..	Moorella Ranger
Tavistock Faith ..	28606	3.11.31	18½	7,048	4·83	340·29	290	Sr. 3	..	260, 334 ..	Audrey's Prince of Banyule
Tavistock Pattibelle ..	33224	9.11.31	12	5,264	5·70	300·27	270	Jr. 3	..	246 ..	Duke of Pendennis
Tavistock Graceful Duchess	33219	10.11.31	11½	5,565	5·55	309·06	270	Jr. 3	..	242 ..	Cloverlea Boy
Tavistock Audrey's Lassie ..		17.11.31	16	6,234	4·81	299·67	230	Jr. 2	..	.. ..	Audrey's Prince of Banyule
Tavistock Audrey's Fairy ..		21.11.31	15	5,199	5·21	270·82	230	Jr. 2	..	.. ..	Audrey's Prince of Banyule
Tavistock Merle		6.12.31	17	5,535	5·66	313·03	230	Jr. 2	..	.. ..	Moorella Ranger
Tavistock Faithful ..	23055	6.12.31	24½	8,214	5·34	438·26	350	Mature	..	443, 482 ..	Vanilla's King of Tavistock
Tavistock May ..	28611	15.12.31	10	5,393	6·40	345·17	290	Sr. 3	..	252, 341 ..	Audrey's Prince of Banyule
Tavistock Rose ..	28614	21.12.31	17	6,500	6·53	424·55	310	Jr. 4	..	271, 369 ..	Audrey's Prince of Banyule
Crawford, Mrs. E., Yinnar, Jersey (1).											
Xavier Handsome Girl ..	33241	6.10.31	21	9,203	5·58	513·17	270	Jr. 3	..	398 ..	Mozart of Warenda
Department of Agriculture, Werribee, Friesian (4).											
Victoria Joyous Piebe ..	3259	11.10.31	20	9,653	3·87	373·78	290	Sr. 3	..	381 ..	Victoria Joyous Mercedes
Victoria Piebe	3262	17.10.31	23	12,751	2·86	364·56	350	Mature	..	413, 401, 388	Dominion Woodcrest Piebe Mercedes
Victoria Clarion ..	3760	21.11.31	20	7,094	3·69	261·51	230	Jr. 2	..	.. ..	Victoria Joyous Mercedes
Victoria Top Notch ..	3267	22.11.31	21	11,013	3·54	389·74	350	Mature	..	377, 446 ..	Victoria Top Note
Department of Agriculture, Werribee, Red Poll (8).											
Victoria Bellalae ..	2304A	29.9.31	15½	6,878	4·13	283·87	270	Jr. 3	..	252 ..	Victoria Vice Regal
Victoria Majesty ..	2090AA	1.10.31	9½	5,736	4·23	242·49	310	Jr. 4	..	219 ..	Victoria Vice Regal
Victoria Picquette ..	1668A	1.10.31	8½	10,239	3·93	402·10	350	Mature	..	327, 384, 416	Belligerent
Victoria Velvet Curl ..	1521A	4.10.31	7½	7,490	4·44	333·28	330	Sr. 4	..	334, 337 ..	Belligerent
Victoria Avesta ..	1142B	12.10.31	8	6,254	4·16	260·45	350	Mature	..	300, 367, 345	Belligerent
Victoria Royal Divorce ..	2335A	17.10.31	10	5,043	4·37	220·46	310	Jr. 4	..	242 ..	Victoria Vice Regal
Victoria Glad Eye ..	3021A	7.11.31	9	3,867	5·45	210·94	230	Jr. 2	..	.. ..	Victoria Vice Regal
Victoria Bushire ..	3012A	7.11.31	13	5,378	4·61	248·18	230	Jr. 2	..	.. ..	Victoria Vice Regal
Victoria Rebel	2333A	8.11.31	13	7,271	4·26	309·71	290	Sr. 3	..	327 ..	Victoria Vice Regal
Victoria Wild Rose ..	3042A	8.11.31	9½	5,000	4·55	227·58	230	Jr. 2	..	.. ..	Victoria Vice Regal
Victoria Amaranth ..	3006A	9.11.31	13	5,621	4·40	247·58	230	Jr. 2	..	.. ..	Victoria Vice Regal
Victoria Amarylis ..	2301A	16.11.31	14	6,027	4·75	286·08	270	Jr. 3	..	256 ..	Victoria Vice Regal
Victoria Cutaway ..	1241B	14.12.31	16½	8,438	4·07	343.50	350	Mature	..	248, 300, 356, 400, 378	Longford Major
Victoria War Ghost ..	2347A	25.12.31	26	9,918	4·45	441·72	330	Sr. 4	..	372, 456 ..	Belligerent

* 150 days in test. † 210 days in test. ‡ 180 days in test. § 240 days in test.

Name of Cow.	Herd Book No.	Date of Calving.	Milk last day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Class.	Order of Merit.	Previous Yields of Butter Fat.	Sire.
Desmond, J. J., Rochester, Jersey (3).											
Belgonia Peggy 7th ..	33276	21.10.31	14½	7,950	5·51	437·69	270	Jr. 3	..	312 ..	Aerial of Banyule
Preston Countess 2nd ..	25353	1.11.31	21½	8,561	4·67	399·78	330	Sr. 4	..	279, 347, 367	Acacia King
Eurungee Graceful Duchess	23268	23.12.31	23	8,075	5·43	438·48	350	Mature	..	369, 458 ..	King William of Rochdale
Dickinson Bros., Sebastopol, Friesian (1).											
Ashby Prudence ..	3314	1.11.31	18½	6,822	3·64	248·32	250	Sr. 2	..	.. ..	Bolobek Dominic
Ashby Queenie 3rd ..	1172	5.12.31	29	10,349	3·33	344·84	350	Mature	..	338, 382, 424, 526, 422, 450	Bolobek Gerenal
*Pauline 3rd of Ashby ..	1002	15.12.31	4	8,580	2·80	240·39	350	Mature	..	260, 255, 318, 345, 437, 333	Bolobek Gerenal
Ashby Queenberry ..	3316	20.12.31	25½	7,768	3·46	268·42	230	Jr. 2	..	.. ..	Bolobek Dominic
Dobson, R. J., Acheron, Jersey (2).											
Pine Grove Julia ..	28382	29.9.32	22½	8,769	4·59	402·14	270	Jr. 3	..	341 ..	Admiral of Fairview
Wattle Grove Sunbeam	25844	3.10.32	27	9,375	4·49	420·67	310	Jr. 4	..	386, 393 ..	Alert of Farringdon
Dookie Agricultural College, Dookie, Ayrshire (1).											
Dookie Sappho ..	23672	6.11.31	28	9,065	4·98	451·25	230	Jr. 2	..	.. ..	Dookie Beau
Dowie, A. F., Carisbrook, Jersey (1).											
Kameruka Masterpiece's Beauty	...	28.9.31	12½	6,353	5·59	355·31	230	Jr. 2	..	.. ..	Werribee Cream's Masterpiece
Mabel's Petal 3rd of Banyule	14187	5.11.31	9	5,381	5·92	318·49	350	Mature	..	307, 410 ..	M.A.T. of Banyule
Downie Bros., Longwarry South, Ayrshire (0).											
Glen View Nessie 2nd ..	...	1.10.31	11	5,012	4·50	225·57	230	Jr. 2	..	.. ..	Gowrie Park Dairy Boy
Glen View Betty 2nd ..	21605	9.10.31	9½	5,390	4·09	220·32	250	Sr. 2	..	.. ..	Gowrie Park Dairy Boy
Glen View Tillie ..	..	15.10.31	6½	4,431	4·02	178·22	230	Jr. 2	..	.. ..	Gowrie Park Dairy Boy
Glen View Ada 3rd ..	21602	22.10.31	6½	5,210	4·22	219·65	270	Jr. 3	..	.. ..	Gowrie Park Dairy Boy
Glen View Innocence 2nd	23893	24.10.31	8	4,412	4·64	204·85	230	Jr. 2	..	.. ..	Gowrie Park Dairy Boy
†Glen View Marie ..	21611	26.10.31	4	8,783	3·66	321·84	350	Mature	..	.. ..	Gold Coin of Fairfield
Glen View Star.. ..	..	20.11.31	6	3,965	4·44	176·18	230	Jr. 2	..	.. ..	Gowire Park Dairy Boy
*Gowrie Park Nessie ..	14444	18.11.31	4	4,305	4·16	179·08	350	Mature	..	.. ..	Bonny Blair of Gowrie Park
Glen View Lady 2nd ..	23895	22.11.31	9½	4,833	4·18	202·22	230	Jr. 2	..	.. ..	Gowrie Park Dairy Boy
Glen View Betty ..	21604	9.12.31	7	6,539	3·97	259·49	350	Mature	..	.. ..	Gold Coin of Fairfield
‡Gowrie Park Innocence	14439	12.12.31	4	4,439	4·49	201·53	350	Mature	..	.. ..	Scottish Heir of Gowrie Park
Ducat, P. J., and Sons, Ardmona, Jersey (3).											
Airlie Beatrice 3rd ..	..	28.10.31	11½	4,981	6·26	311·99	230	Jr. 2	..	..	Hedge of Banyule
Airlie Duchess ..	33312	1.11.31	9½	6,162	5·42	334·20	310	Jr. 4	..	286 ..	Twist of Banyule
Dwyer, G., Balwyn, Jersey (3).											
Yurla Buttercup Larkspur	33320	13.10.31	20	7,625	4·62	352·05	250	Sr. 2	..	209 ..	Karalee Duke
Karalee Easter Daisy ..	..	28.10.31	13	4,388	5·99	262·67	230	Jr. 2	..	.. ..	Karalee Volunteer 4th
Karalee Linda ..	..	12.11.31	18½	6,762	6·00	405·62	230	Jr. 2	..	.. ..	Karalee Duke
Edwards, J. T., Sale, Jersey (5).											
Chandos Masterpiece's Duchess	28682	12.10.31	20	6,443	6·15	396·19	250	Sr. 2	..	256 ..	Studleigh Masterpiece
Chandos Fairy	..	13.10.31	15	5,052	6·33	320·01	230	Jr. 2	..	.. ..	Fairbank Peter
Fairholme Prince's Fairy	..	23.10.31	18	5,175	6·34	327·85	230	Jr. 2	..	.. ..	Prince Rinda
Sunny Brae Morocco ..	25363	14.12.31	31½	8,433	5·60	472·54	310	Jr. 4	..	330, 339 ..	Rosemont Primrose 2nd's Noble
Rockburn Trissie ..	30957	18.12.31	29	9,497	4·52	429·68	310	Jr. 4	..	264, 355 ..	Woodbyne Gay Boy
Elliott and Farr, Wimba, Jersey (0).											
Silvermine 43rd of Banyule	21436	9.10.31	9½	5,392	5·24	283·81	330	Sr. 4	..	314 ..	Wootton Airman
Laughing Waters Lotus ..	..	24.10.31	7	3,726	4·99	185·90	230	Jr. 2	..	.. ..	Banyule Lord Silvair
Laughing Waters Bonaire	..	23.11.31	12½	4,399	4·74	208·48	230	Jr. 2	..	.. ..	Superstrain of Banyule
Emmett, W. H., Stanhope, Jersey (2).											
Coolwoola Pearl 6th ..	33932	30.10.31	7	5,940	5·02	298·38	310	Jr. 4	..	.. ..	Mercedes Golden Prince of Glen Iris
King's Vale Linda 79th ..	32880	1.11.31	7	4,563	5·98	272·82	230	Jr. 2	..	.. ..	King's Vale Rosella 12th's Lad
King's Vale Linda 81st ..	32881	19.11.31	8½	4,821	6·06	292·26	230	Jr. 2	..	.. ..	King's Vale Rosella 12th's Lad
Enders, A. E., Stanhope, Friesian (5).											
Burnbank Alcartra Girl ..	2692	5.10.31	28½	13,732	3·38	463·76	350	Mature	..	309, 327, 456, 434	King Alcartra Netherland
Burnbank Majoe Leonora	..	30.10.31	25½	11,796	3·16	373·12	270	Jr. 3	..	.. ..	Dominion Joe Segis Matador
Eurobin Dutch Patch ..	..	8.11.31	25½	10,563	3·65	385·69	230	Jr. 2	..	.. ..	Netherlea Majoe Dutch man
Burnbank Fraulein Patch	3029	12.11.31	22½	13,935	3·62	504·24	350	Mature	..	460, 451, 537	Rock Patch
Burnbank Netherland Woodcrest	3397	6.12.31	35	14,621	2·89	422·85	330	Sr. 4	..	406, 391 ..	Burnbank Netherland Triumph

* 240 days in test. † 257 days in test. ‡ 210 days in test.

Name of Cow.	Herd Book No.	Date of Calving.	Milk last day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Class.	Order of Merit.	Previous Yields of Butter Fat.	Sire.
Enders, N. H., Stanhope, Jersey (5).											
The Wattle's Gipsy Queen	33327	29.9.31	18	6,735	5·70	384·21	270	Jr. 3	..	361 ..	Prince of Wales of Hillview
Seville of Kelburn ..	12074	23.11.31	28	9,417	5·72	538·87	350	Mature	..	578, 619, 599	Noble Lad of Kelburn
Buttercup of Belgonia ..	21490	23.11.31	26	9,456	5·77	545·74	350	Mature	..	432, 515, 503	Bright Twylish of Belgonia
Jubilee Witch Hazel ..	18940	5.12.31	22½	9,341	5·48	511·74	350	Mature	..	524 ..	Goddington Winks
Northern Princess of Glen Iris	21417	28.12.31	21	7,863	5·53	434·71	350	Mature	..	373, 368 ..	Northern Master of Glen Iris
Esler, G., Tongala, Jersey (3).											
Daisy 3rd of Ballara ..	17502	10.10.31	23	10,232	4·95	506·34	350	Mature	..	399, 416, 448, 427, 461, 490	Silver Boy of Wooringa
Malwand Holly ..	28690	24.10.31	16½	7,011	5·00	350·73	250	Sr. 2	..	351 ..	Duke of Belgonia
Malwand Buttercup ..	28688	29.10.31	16½	8,009	4·47	358·12	250	Sr. 2	..	258 ..	Duke of Belgonia
Flower 2nd of Ballara ..	18997	12.11.31	10½	7,088	4·83	342·42	350	Mature	..	358, 417, 292, 374	Silver Boy of Wooringa
Evans, A., Heywood, Jersey (3).											
Boronia Farm Dainty Lass	28693	5.10.31	N.O.C.	5 249	6·04	316·93	250	Sr. 2	..	287 ..	Prince of Boronia Farm
Boronia Farm Rose ..	33330	3.11.31	10½	4,383	5·77	253·11	230	Jr. 2	..	.. ..	Prince of Boronia Farm
Kelvin Brook Lotus ..	29547	17.12.31	20	6,002	5·92	355·31	290	Sr. 3	..	322 ..	Staghorn Lotus Cream's Masterpiece
Findlay, G., Leitchville, Jersey (6).											
Leven Brae Empress ..	28925	2.10.31	16	9,654	4·52	435·99	310	Jr. 4	..	309, 318 ..	Twylish's Fox of Colac
Twylish's Perree of Leven Brae	21276	14.10.31	25	9,320	5·07	472·41	350	Mature	..	229. 357, 483, 418, 409	Twylish's Fox of Colac
Leven Brae Gay Lady ..	28923	10.11.31	25 ..	9,293	4·61	428·47	310	Jr. 4	..	272, 351 ..	Werribee Gaypiece
Leven Brae Gaiety ..	33339	12.11.31	18	9,114	5·90	537·32	270	Jr. 3	..	320 ..	Werribee Gaypiece
Leven Brae Gay Countess	..	21.11.31	20½	8,684	5·09	440·73	290	Sr. 3	..	247, 342 ..	Werribee Gaypiece
Leven Brae Gay's Fancy	..	25.11.31	18	8,436	4.70	396·26	250	Sr. 2	..	278 ..	Werribee Gaypiece
Findlay, T. R., Leitchville, Jersey (9).											
Leven Brae Daisy Grey ..	28924	3.10.31	17½	8,003	5·47	437·57	310	Jr. 4	..	309, 382 ..	Twylish's Fox of Colac
Rose of Colac	14986	4.10.31	15	8,979	5·43	487·26	350	Mature	..	303, 332, 368, 414, 449	Viscount of Melrose
Leven Brae Queen ..	23139	21.10.31	8½	7,143	5·90	421·13	350	Mature	..	335, 422, 406, 388	Twylish's Fox of Colac
Leven Brae Gay Peeress 2nd	33341	25.10.31	15	7,626	6·08	463·68	290	Sr. 3	..	276, 366 ..	Werribee Gaypiece
Leven Brae Joyce ..	..	28.10.31	9½	6,276	5·70	357·85	250	Sr. 2	..	261 ..	Werribee Gaypiece
Leven Brae Fancy Madeira	25885	1.11.31	24	9,493	4·53	430·19	310	Jr. 4	..	240, 329, 347	Twylish's Fox of Colac
Lady Grey 22nd of St. Albans	13345	2.11.31	20	9,080	4·66	423·45	350	Mature	..	226, 350, 289, 361 412, 365, 314	Brighton King 8th
Leven Brae Gay Rose ..	..	14.11.31	20	7,068	5·54	391·32	290	Sr. 3	..	317 ..	Werribee Gaypiece
Leven Brae Queenie ..	33342	24.11.31	22½	9,464	5·84	552·61	270	Jr. 3	..	423 ..	Werribee Gaypiece
Fisken, A., Yendon, Dairy Shorthorn (0).											
*Poplar Vale Princess 193rd	Vol. 1, D.S.H.	31.10.31	4	4,095	3·54	144·85	350	Mature	..	171, 170 ..	Poplar Vale Prince 130th
Fixter, A., Boisdale, Guernsey (4).											
Fernlea Rosebud ..	2681	4.10.31	15½	6,696	5·76	385·94	290	Sr. 3	..	285, 344 ..	Werribee Jessie's Boy
Avonview Rosette ..	2538	11.10.31	5½	4,106	4·68	192·27	230	Jr. 2	..	.. ..	Melbourne Sand Boy 6th
Avonview Princess ..	3313	12.10.31	13	6,018	5·42	325·99	230	Jr. 2	..	.. ..	Melbourne Sand Boy 6th
Avonview Dulcie ..	2537	1.11.31	N.O.C.	4,931	5·95	293·34	230	Jr. 2	..	.. ..	Melbourne Sand Boy 6th
Fernlea Daffodil ..	2679	16.12.31	11½	6,101	5·69	347·13	290	Sr. 3	..	290, 326 ..	Werribee Jessie's Boy
Fixter, W., Boisdale, Jersey (2).											
Olivedale Queenie ..	24352	3.10.31	12½	6,504	5·31	345·61	350	Mature	..	312, 309, 338	Emperor
Olivedale Stockings ..	..	16.10.31	14	5,679	5·25	298·40	250	Sr. 2	..	.. ..	Studleigh Dandy
Studleigh Dianthus 3rd ..	25287	25.11.31	15	7,337	5·47	401·48	330	Sr. 4	..	315, 380, 389	Studleigh Progress
Foster Bros., Boisdale, Jersey (6).											
Strathbow Audrey ..	34279	28.9.31	14	5,552	5·42	300·80	230	Jr. 2	..	.. ..	Ballara His Majesty
Boisdale Madeira ..	28701	2.10.31	8	5,430	5·26	285·44	250	Sr. 2	..	245 ..	Handsome Boy 4th of Jerseyholm
Boisdale Brunette 2nd ..	28699	14.10.31	9½	5,979	5·40	322·59	250	Sr. 2	..	242 ..	Handsome Boy 4th of Jerseyholm
Hazeldale Moonshine ..	29121	21.11.31	10	5,273	5·33	281·26	310	Jr. 4	..	349, 380 ..	Lord Mannikan of Hazeldale
*Boisdale Heather ..	33346	22.11.31	4	3,855	5·59	215·51	250	Sr. 2	..	212 ..	Valiant Prince of Glen Iris
Boisdale Sparkle ..	28702	5.12.31	13½	4,631	6·57	304·34	250	Sr. 2	..	.. ..	Lord Island's Fancy of Bruce Vale
Nightshade 2nd of Springhurst	14255	16.12.31	10	6,153	5·81	357·51	350	Mature	..	333, 394, 417, 470, 308, 538	Arcadia's Choice of Tarnpirr
Hazeldale Bangle ..	..	24.12.31	12	4,983	4·67	232·78	230	Jr. 2	..	.. ..	Dinkum of Banyule
Fraser, G. A., Addington, Ayrshire (2).											
River Glen Pearl ..	16567	1.10.31	10	7,806	3·75	292·85	350	Mature	..	293, 317 ..	Sterling of Gowrie Park
Roxburgh Graceful 2nd ..	16597	3.10.31	11	8,148	4·05	330·10	350	Mature	..	299, 284 ..	Victory of the Oaks
Glengowrie Elma ..	23872	31.10.31	13½	6,195	3·92	242·78	230	Jr. 2	..	.. ..	Glengowrie Baronet
Craigielea Sylvia ..	17686	3.11.31	10½	7,305	4·03	294·20	290	Sr. 3	..	326, 259 ..	Petunia's Prince of Glencira

* 210 days in test.

Name of Cow.	Herd Book No.	Date of Calving.	Milk last day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Class.	Order of Merit.	Previous Yields of Butter Fat.	Sire.
Freestone, P., Murchison, Jersey (3).											
Belzonya Romany's Pride	..	12.10.31	11	4,333	5·97	258·54	230	Jr. 2	..	..	Belgonia Stumpy's Twylish
Jerseyvale Doris ..	24535	17.10.31	12½	7,920	4·86	384·70	350	Mature	..	287, 348, 373	Princess 2nd's Twylish of Grangelea
Jerseyvale Princess 3rd ..	29281	25.11.31	N.O.C.	8,129	4·85	394·07	290	Sr. 3	..	249, 254 ..	Princess 2nd's Twylish of Grangelea
Fuller, S. R., Tongala, Jersey (1).											
Esperance Joy Bell ..	24376	17.10.31	18½	7,896	5·89	464·77	330	Sr. 4	..	435 ..	Werribee Madeira Cream's Masterpiece
Gange, Mrs. E. M., Werribee South, Ayrshire (3).											
Roseleigh Starlight ..	20702	29.9.31	16½	11,184	3·70	414·02	330	Sr. 4	..	196, 183 ..	Oakbank Reply
Roseleigh Bloom ..	14802	7.10.31	7	8,079	3·69	298·09	350	Mature	..	345, 366 ..	Oakbank Reply
*Roseleigh Winsome ..	23210	17.10.31	4	4,395	4·36	191·73	250	Sr. 2	..	.. ..	Roseleigh Baronet
Roseleigh Merle ..	18898	20.11.31	15½	8,705	4·36	379·27	290	Sr. 3	..	.. ..	Oakbank Reply
Roseleigh Ramona ..	24315	23.12.31	12	5,706	4·21	240·15	230	Jr. 2	..	.. ..	Roseleigh Radio
Gardiner, J. L., Welshpool, Jersey (3).											
Lauriston Twylish Belle	34017	1.10.31	12½	5,396	4·83	260·59	230	Jr. 2	..	.. ..	Lauriston Twylish Nobility
Lauriston Golden Belle ..	34012	14.10.31	11½	5,696	4·24	241·27	230	Jr. 2	..	.. ..	Lauriston Twylish Nobility
Lauriston Brown Duchess	18720	23.10.31	9½	6,165	5·21	321·29	350	Mature	..	215, 239, 294, 248, 364	Duke of Willis Vale
Daisy Belle of Whare Koa	14152	23.10.31	9	6,272	4·91	307·72	350	Mature	..	258, 310, 300, 312, 372, 361, 353	Retford Mourier Lad
Lauriston Island Lady ..	34013	31.10.31	9	4,706	5·08	238·88	230	Jr. 2	..	.. ..	Jerseyholm Island 7th
Lauriston Musical Belle ..	25892	8.11.31	4	3,801	5·51	209·62	310	Jr. 4	..	231, 283 ..	Musician of Warinda
Gardner, Mrs. M. S., Nilma, Jersey (0)											
†Paradise Pearl ..	30998	8.10.31	4	3,008	4·88	146·94	350	Mature	..	.. ..	Top Note of Warenda
Gay, R. G., North Devon, Jersey (1)...											
Warenda Dal Monte 3rd..	34023	7.10.31	17½	6,962	5·72	398·10	230	Jr. 2	..	.. ..	Warenda Snap
Gibson Bros., Trafalgar, Jersey (6).											
Leathorne Laurette ..	33372	28.9.31	15	5,985	5·99	358·32	250	Sr. 2	..	321 ..	Mercedes Gipsy Boy of Glen Iris
Leathorne Cream Belle 2nd	33363	5.10.31	12½	4,794	4·76	228·09	230	Jr. 2	..	.. ..	Mercedes Gipsy Boy of Glen Iris
Leathorne Lilac 2nd ..	33373	5.10.31	14	6,829	5·29	361·08	270	Jr. 3	..	292 ..	Mercedes Gipsy Boy of Glen Iris
Sweet Star of Glen Iris ..	14178	5.10.31	13	8,998	5·20	467·52	350	Mature	..	283, 337, 407, 375, 418, 471	Sweetbread's Duke of Glen Iris
Leathorne Sweet Star ..	33378	5.10.31	15½	6,787	5·59	379·50	270	Jr. 3	..	.. ..	Mercedes Gipsy Boy of Glen Iris
Leathorne Lilac ..	23163	6.10.31	21½	8,834	5·41	478·25	350	Mature	..	318, 383, 421, 378	Ideal of Leathorne
Leathorne Spring Daisy	24372	1.12.31	13½	6,051	6·13	370·75	330	Sr. 4	..	342, 311 ..	Annette's Chief 2nd of Linden
Gorman, A. W., Alexandra, Ayrshire (5).											
Cathcart Winalot ..	19720	28.9.31	12	5,927	4·37	258·74	250	Sr. 2	..	.. ..	Pender of Ben Kell
Cathcart Poppy's Princess	21144	16.10.31	15	6,813	4·06	276·71	230	Jr. 2	..	.. ..	Ben Kell Watford
Cathcart Merl	17495	23.10.31	20	9,920	3·65	361·90	310	Jr. 4	..	250, 357 ..	Cathcart Mentor
Cathcart Marjory ..	21140	24.10.31	20	6,738	4·28	288·10	230	Jr. 2	..	.. ..	Poppy's Advance of Ben Kell
Muriel of Cathcart ..	13522	24.10.31	30	11,018	4·75	523·04	350	Mature	..	203, 298, 403, 370, 499	Poppy's Advance of Ben Kell
Harker, D. C., Tyers, Ayrshire (0).											
*Thirlmere Adeline ..	19071	25.10.31	4	5,235	4·41	230·99	310	Jr. 4	..	254, 318 ..	Scottish Lord of Gowrie Park
Thirlmere Dulcie ..	22142	8.11.31	10	5,118	4·10	209·84	230	Jr. 2	..	.. ..	Scottish Lord of Gowrie Park
Thirlmere Ada ..	20778	23.11.31	4	4,640	4·03	188·23	250	Sr. 2	..	.. ..	Scottish Lord of Gowrie Park
Thirlmere Adorn ..	22138	14.12.31	15	5,213	3·89	202·85	230	Jr. 2	..	.. ..	Scottish Lord of Gowrie Park
Thirlmere Agnes ..	14895	22.12.31	17	6,210	4·51	279·97	350	Mature	..	211, 230, 239, 287	Patrician of Thirlmere
Harker, W. T., Caldermeade, Ayrshire (2).											
Winsome of Wayside ..	14911	5.10.31	20	8,797	4·27	375·50	350	Mature	..	215, 282, 319,	Majesty of Fern Hill
Wayside Dolly 2nd ..	24430	26.10.31	14½	6 629	4·15	274·82	230	Jr. 2	..	.. ..	Sportsman of Willow Vale
Carnation of Wayside ..	16899	30.11.31	5½	8,975	3·54	317 60	350	Mature	..	245, 343, 358, 352	Leila's Optimist of Warrook
Harris, J. W., Clyde, Jersey (0).											
Dingley Dell Mandoline ..	23200	22.12.31	21	5,973	5·69	340·07	350	Mature	..	266, 330, 357	Othello of Warenda
Harrison, Miss K., Frankston, Jersey (0).											
Walbundry Alpha 2nd ..	28752	4.11.21	17	5,618	4·53	254·65	290	Sr. 3	..	155, 205 ..	Don of Walbundry
Harrison, F. T., and Sons, Moondarra, Jersey (1).											
Mornmoot Mannette ..	28552	24.10.31	15	7,073	5·47	386·77	250	Sr. 2	..	290 ..	Koomangoonong Prince Nephitos

* 240 days in test. † 210 days in test.

Name of Cow.	Herd Book No.	Date of Calving.	Milk last day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Class.	Order of Merit.	Previous Yields of Butter Fat	Sire.
Harvey, T., Boisdale, Jersey (9).											
Jerseyholm Empress 21st	..	21.10.31	13½	5,331	5·18	276·11	230	Jr. 2	..	.. ..	Lord Island Fancy of Bruce Vale
Jerseyholm Blue Bell 8th	25393	30.10.31	10	5,781	5·51	318·53	310	Jr. 4	..	297 ..	Lord Island Fancy of Bruce Vale
Jerseyholm Blue Bell 7th	23202	31.10.31	13	7,964	5·45	434·27	350	Mature	..	310 347 338	Handsome Boy 5th of Melrose
Jerseyholm Kirsty 23rd ..	25401	8.11.31	15½	6,020	6·16	370·75	290	Sr. 3	..	277 ..	Lord Island Fancy of Brucevale
Defender's Queen of Somerset	10142	13.11.31	18	8,954	4·37	391·07	350	Mature	..	215 225 292 282	Lord Silvermine of Banyule
Aveley Attraction 3rd ..	25392	20.11.31	15	6,390	5·66	361·68	310	Jr. 4	..	.. ..	Economist of Aveley
Jerseyholm, Empress 19th	..	23.11.31	16	5,462	5·32	290·53	230	Jr. 2	..	.. ..	Lord Island Fancy of Bruce Vale
Jerseyholm Empress 13th	25398	27.11.31	18½	7,287	5·89	428·87	290	Sr. 3	..	338 ..	Werribee Master's Fox
Kirsty 16th of Jerseyholm	18736	30.11.31	19	7,997	5·69	454·68	350	Mature	..	351, 433, 455, 455, 411	Handsome Boy 5th of Melrose
Hayes, E. P., Loch, Jersey (4).											
Tourourrong Trinket ..	..	1.10.31	9	4,907	5·14	252·29	230	Jr. 2	..	.. ..	Marc Antony of Aveley
Cosmas Princess ..	25404	4.10.31	14	7,922	5·14	407·22	290	Sr. 3	..	.. ..	Master Clement of Glen Iris
*Jublice Desert Pea ..	33662	13.10.31	4	5,640	5·10	287·63	270	Jr. 3	..	.. ..	Jubilee Wheatlight
Avalon Mercedes Buttercup 6th	22937	29.10.31	N.O.C.	5,798	4·51	261·24	350	Mature	..	299, 381, 444	Mercedes Chief of Glen Iris
St. John's Ruby 4th ..	..	1.12.31	15	5,676	4·42	251·01	230	Jr. 2	..	.. ..	Valda's Lad of Comely Banks
Henderson, R., Macorna, Ayrshire (1).											
Cathcart Dora ..	14841	11.10.31	4	8,064	4·36	351·24	350	Mature	..	.. ..	Poppy's Advance of Ben Kell
Meadow Lass of Sunnyside	13005	27.10.31	8	7,995	3·74	298·96	350	Mature	..	452, 394, 359	Bernie of Oakbank
Cathcart Betty ..	13579	17.11.31	8½	6,723	3·98	267·54	350	Mature	..	.. ..	Poppy's Advance of Ben Kell
Henderson, W., Dennington, Ayrshire (1).											
*Fennella 7th of Carracoorte	9355	6.10.31	4	8,010	3·94	315·33	350	Mature	..	232, 229, 188, 325, 402, 314 348, 290	Lord Dudley of Gowrie Park
Dairylass 2nd of Carracoorte	9348	16.10.31	14½	9,231	4·17	384·48	350	Mature	..	364, 246, 325, 264, 291, 274	Lord Dudley of Gowrie Park
Carracoorte Lucy 12th ..	23551	28.10.31	7½	5,024	4·82	242·15	250	Sr. 2	..	.. ..	Gerty's Producer of Carracoorte
†Carracoorte Rosebloom 11th	21134	31.10.31	4	5,655	4·00	226·33	350	Mature	..	156, 249, 243, 250	Maxwell of Sparrovale
Fennella 5th of Carracoorte	9353	7.11.31	9½	6,512	4·35	283·56	350	Mature	..	153, 215, 175, 245, 338, 263, 283, 309	Victor 2nd of Carracoorte
Henderson, W., Grasmere, Ayrshire (5).											
*Sparrovale Buttercup ..	16646	29.9.31	4	5,835	3·89	227·03	350	Mature	..	269, 290, 321	Jamie of Sparrovale
Carracoorte Bunty 14th	23548	29.9.31	26½	7,554	3·91	295·01	230	Jr. 2	..	.. ..	Carracoorte Lochiel
*Carracoorte Bellona 11th	19680	4.10.31	4	7,620	3·46	263·78	250	Sr. 2	..	227 ..	Leader of Cathcart
Carracoorte Bellona's Picture	23544	10.11.31	N.O.C.	3,992	5·23	208·89	230	Jr. 2	..	.. ..	Carracoorte Lochiel
Carracoorte Viola 17th ..	23554	13.11.31	15	6,567	4·69	307·70	230	Jr. 2	..	.. ..	Bluebell's Pride of Glencourt
Carracoorte Brownie's Belle	23547	20.11.31	5	5,015	5·18	259·77	230	Jr. 2	..	.. ..	Gerty's Producer of Carracoorte
Carracoorte Bellona 12th	23542	30.11.31	17	5,996	4·06	243·45	230	Jr. 2	..	.. ..	Carracoorte Lochiel
Carracoorte Bunty 12th	17455	11.12.31	18	7,836	3·93	308·31	310	Jr. 4	..	262, 278 ..	Leader of Carracoorte
Carracoorte Bellona 14th	23543	11.12.31	13	5,454	4·21	229·66	230	Jr. 2	..	.. ..	Gerty's Producer of Carracoorte
Hercus, T. B., Hayanmi, Jersey (1).											
Mologa Wattle ..	..	18.11.31	21	6,729	4·77	321·10	230	Jr. 2	..	.. ..	Prince of Mologa
Herd, L. J., Yarra Glen, Jersey (1).											
‡Greenhills Ruby ..	28963	15.10.31	4	5,603	4·63	259·23	250	Sr. 2	..	.. ..	Magnet of Aveley
Holbing, L. W. C., Tongala, Jersey (2).											
Eildon Actress 3rd ..	..	6.11.31	15½	4,790	5·59	267·98	230	Jr. 2	..	.. ..	Ballara His Majesty
Eildon Ladybird ..	..	28.12.31	14	3,758	6·15	230·95	230	Jr. 2	..	.. ..	Ballara His Majesty
Hore, L. G., Horefield, Illawarra Shorthorn (6).											
Melba 78th of Darbalara	16932	5.10.31	18	8,255	4·48	369·93	350	Mature	..	174, 250 ..	Darby of Darbalara
Horefield Daisy ..	..	26.10.31	21½	7,859	4·19	329·06	230	Jr. 2	..	.. ..	Doncaster of Darbalara
Alne Bank Silkette ..	1918	28.10.31	23	7,877	3·78	297·86	230	Jr. 2	..	.. ..	Royal Light of Alne Bank
Melba of Kimo ..	..	10.11.31	13	7,127	4·68	333·27	310	Jr. 4	..	101 ..	Doncaster of Darbalara
Horefield Vera	5034	16.11.31	10½	5,223	4·47	233·60	230	Jr. 2	..	.. ..	Colmar of Aralabrad
Aralabrad Champion 2nd	16847	13.12.31	17½	8,076	4·24	342·34	290	Sr. 3	..	.. ..	Cromwell of Darbalara
Howlett, E. H., Morwell, Jersey (4).											
Latrobe Silvermine 5th ..	25424	4.10.31	13½	4,511	7·97	359·63	270	Jr. 3	..	349 ..	Superstrain of Banyule
Latrobe Stella 8th ..	28978	8.10.31	13½	5,219	5·63	294·00	230	Jr. 2	..	.. ..	Latrobe Molly's Airman
Lotus 2nd of Banyule ..	11588	26.10.31	13½	6,029	5·71	344·49	350	Mature	..	245, 279, 336	Milkmaid's Chief
Latrobe Dorothy 2nd ..	24397	27.10.31	16	7,031	5·24	368·40	350	Mature	..	372 ..	Tertius of Banyule
Latrobe Silvermine 4th ..	25423	20.11.31	9	5,475	5·56	304·50	270	Jr. 3	..	248 ..	Superstrain of Banyule

* 240 days in test. † 210 days in test. ‡ 180 days in test.

Name of Cow.	Herd Book No.	Date of Calving.	Milk last day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Class.	Order of Merit.	Previous Yields o Butter Fat.	Sire.
Huffer, J. A., Gormandale, Jersey (9).											
Glen Valley Rosebloom ..	25431	3.10.31	15	6,245	5·92	369·82	290	Sr. 3	..	270, 324 ..	Waveley's Count of Glen Valley
Coral Sand of Glen Valley	21355	9.10.31	19½	8,294	4·52	374·49	350	Mature	..	272, 308, 387, 414	Perree's Lad of Glen Valley
Rosebuds Perree's Fancy of Glen Valley	21357	19.10.31	22	10,152	5·38	545·69	350	Mature	..	307, 411, 445, 500	Perree's Lad of Glen Valley
Glen Valley Sand Girl ..	24404	24.10.31	10½	7,187	5·86	421·43	350	Mature	..	307, 342, 406	Waveley's Count of Glen Valley
Glen Valley Waveley Lass 3rd	28761	25.10.31	11	4,883	6·16	301·01	250	Sr. 2	..	280 ..	Cream Lad of Mayland
Rosebud 2nd of Paradise	13798	9.11.31	21	9,326	5·66	528·07	350	Mature	..	399, 401, 418, 524, 518, 540	Werribee Northern Larkspur's Fancy
Melrose Handsome Girl 14th	25697	18.11.31	12½	6,318	6·29	397·38	330	Sr. 4	..	217, 381, 400	Sunset of Melrose
Glen Valley Rosemary ..	24403	20.11.31	9½	6,206	5·60	347·41	350	Mature	..	300, 349, 380	Waveley's Count of Glen Valley
Czarina of Glen Valley ..	18754	20.11.31	15½	8,039	5·80	466·41	350	Mature	..	331, 399, 481, 486	Pansy's Eminent of Rosemont
Glen Valley Handsome Girl	..	13.12.31	16	5,000	6·46	322·96	230	Jr. 2	..	.. ..	Melrose Clementine 2nd's Masterpiece
Huggins, R. E., Bullarook, Jersey (1).											
Delmont Princess ..	28764	21.11.31	15	6,153	5·25	323·32	270	Jr. 3	..	209, 288 ..	Enimint's Achievement of Clarendon Eyre
Hurry, W. H., Koonwarra, Jersey (2).											
Kooreena Mourier Queen 3rd	34106	5.10.31	13½	6,362	5·77	367·40	230	Jr. 2	..	.. ..	Kooreena Carrie 3rd's Delegate
Kooreena Minerva 2nd ..	25952	7.10.31	16	8,246	5·95	490·80	310	Jr. 4	..	289, 482 ..	Columbine Defiance of Linga Longa
Hutchinson, J. and Sons, Somerville, Jersey (2).											
St. John's Curio 6th ..	23011	3.10.31	20	7,335	6·61	485·19	350	Mature	..	.. ..	Valda's Lad of Comely Banks
Somerville Babs 4th ..	34107	5.10.31	21	6,317	5·96	376·43	230	Jr. 2	..	.. ..	Banyule Aeronaut
Ingram, A. B., Powelltown, Illawarra, Shorthorn (2).											
Florrie 11th of Glenburn	11441	27.10.31	N.O.C.	7,200	4·10	295·24	310	Jr. 4	..	261, 247 ..	Tulip's Lad of Lemon Grove
Hillview Violet 11th ..	12002	24.11.31	N.O.C.	10,259	3·68	377·27	330	Sr. 4	..	.. ..	Douglas of Clivehurst
Fairfield Gwen 6th ..	1899	8.12.31	N.O.C.	7,560	3·32	250·78	230	Jr. 2	..	.. ..	Aerobat of Greyleigh
Itzerott, Bros., Heathcote, Jersey (5).											
Golden Fern of Five Gums	16288	8.10.31	21½	9,381	4·80	450·19	350	Mature	..	.. ..	Golden Fern's Viscount
Five Gum's Primula 4th	25966	22.10.31	16½	7,499	5·47	409·99	270	Jr. 3	..	.. ..	Pearl's Lad of Coolwoola
Five Gum's Goldie 2nd ..	25963	24.10.31	17	7,511	5·06	380·05	310	Jr. 4	..	.. ..	Pearl's Lad of Coolwoola
Primula of Five Gums ..	19918	22.12.31	21½	6,918	5·72	395·41	350	Mature	..	.. ..	Lassie Fowler 5th's Son of Melrose
Five Gum's Fairy Fern ..	..	25.12.31	13½	5,340	6·22	332·13	230	Jr. 2	..	.. ..	Staghorn Clementine Masterpiece 2nd
Kent, G., Archies Creek, Ayrshire (0).											
Merry of Woolamai Park	12357	1.10.31	9	6,320	5·01	316·37	350	Mature	..	264, 228, 402, 365, 358	Bonny Boy of Woolamai Park
Woolamai Bright ..	17012	2.10.31	4½	5,955	4·08	242·75	330	Sr. 4	..	286, 343 ..	Statesman of Gowrie Park
*Woolamai Picture ..	14999	4.10.31	4	4,395	4·29	188·58	350	Mature	..	241, 225, 238	Statesman of Gowrie Park
Knowles, T., Dandenong, Ayrshire (9).											
Dandy Snowdrop ..	23616	4.10.31	19	7,271	4·64	337·46	230	Jr. 2	..	.. ..	Beleura Sarchedon
Glengowrie Eva ..	23873	9.10.31	22½	6,635	4·06	269·29	230	Jr. 2	..	.. ..	Glengowrie Baronet
Dandy Bluebell ..	19820	5.11.31	20½	8,225	4·12	338·73	270	Jr. 3	..	298 ..	Glencourt Prince
Beleura Petrel ..	19506	12.11.31	23	9,572	3·62	346·03	310	Jr. 4	..	271, 275 ..	Sunshine of Olivedale
Beleura Primula 3rd ..	19510	25.11.31	9½	6,404	4·09	262·14	310	Jr. 4	..	224 ..	Starlight of Beleura
Dandy Emma	19822	29.11.31	17	7,007	4·00	280·50	270	Jr. 3	..	242 ..	Glencourt Prince
Dandy Belle	21294	5.12.31	17	5,513	4·75	261·78	250	Sr. 2	..	.. ..	Oakbank Rehostat
Dandy Modest	23612	9.12.31	19	6,561	4·01	263·09	230	Jr. 2	..	.. ..	Glenalvie Scottish King
Dandy Pearl	23614	9.12.31	14	5,575	4·82	268·86	230	Jr. 2	..	.. ..	Beleura Sarchedon
Dandy Sadie	23615	16.12.31	25	6,527	3·82	249·37	230	Jr. 2	..	.. ..	Glengowrie Federation
Koenig, Bros., Mooroopna North, Ayrshire (2).											
†Wattle Park Dairy Lass	22197	5.10.31	11	8,999	4·09	367·67	250	Sr. 2	..	.. ..	Wattle Park Lockie
Oakbank Peeress ..	18763	8.10.31	4	10,230	4·09	418·44	350	Mature	..	277, 374 ..	Regality of Oakbank
Kurrie, J. G., Korumburra, Ayrshire (0).											
Grand View Meadow Lass	23983	29.9.31	N.O.C.	4,274	3·63	155·30	230	Jr. 2	..	.. ..	Grand View Blazer
‡Grand View Annie Maria	21693	14.11.31	4	3,225	3·44	110·99	270	Jr. 3	..	149 ..	Grand View Blazer
Lade, A., Alexandra, Jersey (2).											
Hythe Fairy	33444	9.10.31	10	4,476	6·18	276·72	270	Jr. 3	..	186 ..	Snow's Boy of Farringdon
Hythe Jess	..	24.12.31	22	5,936	5·45	323·43	230	Jr. 2	..	.. ..	Bruce of St. Albans
Lade, F., Kew, Jersey (1).											
Soprano 5th of Banyule..	14198	10.10.31	12	6,600	5·93	391·09	350	Mature	..	256, 329 ..	Wotton Airman
Lawrence, P. H., Tarrawarra, Jersey (0).											
Ringa Noble Leda ..	24441	12.10.31	12	5,130	6·10	312·99	350	Mature	..	278, 361 ..	The General of Roselands

* 210 days in test. † 261 days in test. ‡ 180 days in test.

Name of Cow.	Herd Book No.	Date of Calving.	Milk last day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Class.	Order of Merit.	Previous Yields of Butter Fat.	Sire.
Lennie, E. M. (Mrs.), Tongala, Jersey, (8).											
The Valley Merella 3rd ..	26021	9.10.31	20	7,764	5·21	404·18	310	Jr. 4	..	238, 334 ..	Blackthorn of Fairview
The Valley Stumpy 2nd	26025	15.10.31	19	8,036	4·48	359·79	350	Mature	..	284, 338 ..	Attraction of Fairview
The Valley Madamoselle	34163	3.11.31	18½	5,765	4·57	263·58	230	Jr. 2	..	.. ..	Blackthorn of Fairview
The Valley Stumpy 3rd..	28827	16.11.31	18½	7,751	5·45	422·11	270	Jr. 3	..	336 ..	Blackthorn of Fairview
The Valley Wattle ..	..	25.11.31	18	6,282	5·07	318·67	230	Jr. 2	..	.. ..	Blackthorn of Fairview
The Valley Black Rose ..	26017	29.11.31	12½	7,673	5·70	437·64	310	Jr. 4	..	299, 458 ..	Blackthorn of Fairview
The Valley Myra 5th ..	26023	17.12.31	12	5,307	5·27	279·72	330	Sr. 4	..	299, 227, 299	Blackthorn of Fairview
Burnside Claribelle ..	26016	18.12.31	N.O.C.	5,798	4·54	263·44	350	Mature	..	295, 288, 245	Burnside Hercules
The Valley Myrtle ..	34166	19.12.31	14	5,249	5·13	269·47	230	Jr. 2	..	.. ..	Blackthorn of Fairview
Le Noury, E., Werribee, Guernsey (1).											
Werribee Merry Maid ..	2638	1.10.31	12	3,707	5·79	214·47	230	Jr. 2	..	.. ..	Yarra View Saxon
Werribee Daffodil's Maid	1887	21.10.31	7½	5,720	4·51	257·74	290	Sr. 3	..	.. ..	Yarra View Saxon
Werribee Princess Daffodil	1245	7.11.31	N.O.C.	7,784	4·99	388·49	350	Mature	..	.. ..	Gem of Meadow View
Lockett, C., and R., Ballarat, Jersey (1).											
Tragedienne of Aveley ..	18801	30.9.31	9½	4,889	5·19	253·80	350	Mature	..	269 ..	Choirmaster of Banyule
Glen Alvie Montrose Mistress	29019	9.10.31	10½	3,309	6·55	216·83	250	Sr. 2	..	.. ..	Werribee Fancy Masterpiece
*Lady of Bellaire ..	19882	5.11.31	4	2,790	4·66	129·92	350	Mature	..	.. ..	Eureka of Banyule
Glen Alvie Montrose Duchess	25454	24.12.31	15½	5,231	5·85	306·00	270	Jr. 3	..	.. ..	Ptrope of Comely Banks
Longerenong Agricultural College, Longerenong, Ayrshire (1).											
†Merle of Longerenong ...	12435	29.9.31	4	6,045	4·22	255·12	350	Mature	..	283, 314, 269, 322, 280, 368	Aristocrat of Woongarra
Longerenong Ivy ..	15047	6.10.31	6½	6,328	4·04	255·46	350	Mature	..	191, 296, 221, 286	Aristocrat of Weongarra
Longerenong Silver Wattle	23093	15.10.31	14	6,052	4·70	284·74	230	Jr. 2	..	.. ..	Lily's Lad of Holly Green
Lowing, L. (Mrs.), Tongala, Jersey (2).											
Patricia of Jersey Vale ..	18886	18.10.31	11	6,479	5·81	376·35	350	Mature	..	217, 295, 449, 365	Choice 2nd of Tarnpirr
Mystery 2nd of Belgonia	18858	24.12.31	24½	6,958	5·41	376·62	350	Mature	..	298, 331, 425, 389	Prince of Belgonia
Lyon, C. G., Heidelberg, Jersey (7).											
Banyule Tiddlewinks 3rd	24473	3.10.31	23	8,129	5·24	425·65	330	Sr. 4	..	460, 472 ..	Air Lord of Banyule
Banyule Silvermine 63rd	28844	22.10.31	19½	6,189	5·54	342·58	230	Jr. 2	..	.. ..	Air Lord of Banyule
Banyule Lady Lotus ..	25461	29.10.31	21½	7,157	5·95	425·96	270	Jr. 3	..	323 ..	Air Lord of Banyule
Banyule Silvermine 46th..	24466	1.11.31	19	8,429	5·48	462·19	330	Sr. 4	..	390, 402 ..	Wotton Airman
Banyule Silvermine 53rd..	25471	29.11.31	27	8,756	5·09	445·41	270	Jr. 3	..	387 ..	Air Lord of Banyule
Banyule Silvermine 67th..	28848	2.12.31	18½	6,032	4·86	293·26	230	Jr. 2	..	.. ..	Air Lord of Banyule
Banule Soprano 12th ..	28850	9.12.31	18	7,001	6·02	421·47	230	Jr. 2	..	.. ..	Superstrain of Banyule
Macauley, C. W. W., Rochester, Jersey (2).											
Taranah Tassel ..	33490	20.10.31	14½	6,309	5·31	335·24	230	Jr. 2	..	.. ..	Duke of Invermay
Taranah Daisy ..	23291	24.11.31	14½	7,508	4·62	346·77	350	Mature	..	204, 313, 326	Nobleman of Taranah
Taranah Roseleaf 2nd ..	29086	27.11.31	8	6,881	5·82	400·44	310	Jr. 4	..	294 ..	Prince of Taranah
McDougall, J., Byaduk, Jersey (1).											
Parkview Madge ..	29050	28.9.31	7	3,983	5·78	230·15	310	Jr. 4	..	185 ..	Cream Lad of Fairview
Parkview Shirley ..	26057	17.10.31	20	7,312	5·79	423·54	290	Sr. 3	..	382 ..	Cream Lad of Fairview
Parkview Daisy ..	34204	19.10.31	12	4,178	4·59	191·70	230	Jr. 2	..	.. ..	Prince of Parkview
McErvale, I., and Sons, Camperdown, Jersey (1).											
Cumnock Noble Duchess	25486	10.11.31	4	5,865	4·60	269·51	330	Sr. 4	..	262, 297 ..	Vanilla Noble of Tavistock
Carranballac Lady Carson's Fancy	29054	21.12.31	21½	7,356	5·08	373·34	350	Mature	..	351, 379 ..	Sir Fancy Madeira of Werribee
McInnes, A. A., Gunbower, Dairy Shorthorn (1).											
Roseleaf 6th	..	8.11.31	6	7,434	3.96	294·72	270	Jr. 3	..	241 ..	132nd Earl of Pentland
McLeish, H. F., Kernot, Jersey (1).											
Glen Iris Brown Rose ..	25301	14.10.31	11	5,609	5·77	323·45	350	Mature	..	309, 315, 442	Montrose East of Glen Iris
Ewelme Northern Nancy	..	15.10.31	12	4,640	5·84	270·82	230	Jr. 2	..	.. ..	Northern Master of Glen Iris
McNabb, G. A., and Son, Irrewillipe East, Jersey (3).											
Mercedes Belle 3rd of Avalon	18613	19.10.31	22	8,253	4·48	369·59	350	Mature	..	219, 164, 354, 405	Mercedes Chief of Glen Iris
Mendip Vanilla 2nd ..	23465	24.10.31	17½	7,197	5·11	367·73	350	Mature	..	281, 345, 406	Mozart of Warenda
Ranunculus 2nd of Springhurst	18937	4.11.31	24	7,571	5·35	405·09	350	Mature	..	311, 368, 348, 443	Othman of Springhurst
Mesdames McWhae and Silvester, Merino, Guernsey (0).											
Talisker Ettie	2647	31.10.31	9½	4,421	4·52	199·62	230	Jr. 2	..	.. ..	Wollongbar Leo 2nd
Maher Bros., Seymour, Ayrshire (2).											
Evelyn Sweetness ..	19976	4.10.31	N.O.C.	6,888	4·32	297·39	270	Jr. 3	..	267 ..	Gowrie Park Scottish Expert
‡Evelyn Adeline ..	16014	7.10.31	4	7,460	4·03	300·72	350	Mature	..	255, 314, 282	Belladona's Jamie of Ellerslie
Evelyn Ada	21393	1.11.31	13	5,272	4·54	239·32	230	Jr. 2	..	.. ..	Gowrie Park Scottish Expert
Maher, R. H., Tongala, Jersey (2).											
Rosemont Lassie Fowler 5th	33493	18.10.31	5	5,825	5·97	347·76	270	Jr. 3	..	.. ..	Rosella 2nd's Noble of Rosemont
Rosemont Jenny Lind 7th	..	4.11.31	10½	5,832	5·82	339·66	310	Jr. 4	..	.. ..	Rosella 2nd's Noble of Rosemont
Mailer, Dr. R., Shepparton, Jersey (3).											
Maneroo Baroness		16.10.31	19½	7,085	6·22	440·95	230	Jr. 2	..	.. ..	Wompini Royal Duke
Maneroo Daphne 2nd's Anne	33495	20.11.31	17½	6,144	5·89	361·77	270	Jr. 3	..	242 ..	Uranus of Aveley
Margaret's Silvermine 2nd of Somerset	17399	28.11.31	25	8,521	4·86	414·14	350	Mature	..	330, 315, 306	Lord Silvermine 8th of Banyule

* 150 days in test. † 240 days in test. ‡ 210 days in test.

Name of Cow.	Herd Book No.	Date of Calving	Milk last day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Class.	Order of Merit.	Previous Yields of Butter Fat.	Sire.
Mapleson, A. J., Jindervick, Jersey (0).											
Jessie of Merridale ..	9552	3.11.31	9½	5,714	6·00	343·08	350	Mature	..	513, 468, 486, 447, 515	Big Chief of Glen Iris
Marshall, M., Myrtlebank, Jersey (2).											
Elthamleigh Twinkle Lass 2nd	22927	18.10.31	9	6,987	5·59	390·87	350	Mature	..	241	Dr. Jim of Koorawatha
Studleigh Dianthus 8th ..	..	26.10.31	22½	6,705	5·73	383·95	230	Jr. 2	..	..	Studleigh Masterpiece
Meadowcroft, S., Stanhope, Jersey (0).											
Irymple Lovely ..	..	2.10.31	8½	3,924	5·37	210·84	230	Jr. 2	..	191	Hinkler of Castlemaddie
Mesley, T., Dalyston, Jersey (6).											
Warenda Garenne 11th ..	33518	6.10.31	19½	8,295	5·81	481.74	270	Jr. 3	..	434	Warenda Snap
Warenda Mandoline 6th ..	..	12.10.31	15½	5,776	5·30	305·99	230	Jr. 2	..	..	Belgonia Air King
Warenda Garenne 10th ..	33517	23.10.31	17½	6,272	5·98	374·80	270	Jr. 3	..	316	Warenda Snap
Warenda Ragtime 6th ..	..	28.10.31	17½	6,069	5·33	323·58	230	Jr. 2	..	..	Belgonia Air King
Warenda Madrigal 3rd ..	26084	5.12.31	21½	7,544	5·41	407.94	330	Sr. 4	..	346, 378	Kinnor of Banyule
Warenda Gazelle 7th ..	29150	17.12.31	27	7,568	6·47	489·91	310	Jr. 4	..	401, 423	Warenda Snap
Middleton, E. M., Hamilton, Jersey (6).											
Haifa Topsy Lotus ..	29001	1.10.31	N.O.C.	3,575	5·93	212·06	250	Sr. 2	..	245	Staghorn Lotus Cream's Masterpiece
Kyora Dream Girl ..	29160	3.10.31	20½	8,015	5·82	466·82	310	Jr. 4	..	374, 416	Perree's Duke
Melrose Blossom 11th ..	33962	3.10.31	14½	5,757	5·44	312·93	270	Jr. 3	..	299	Masterpiece
Ballara Dulcie 5th ..	..	7.10.31	20½	6,756	6·18	417·21	230	Jr. 2	..	..	Ballara Garenne's Masterpiece
Castlemaddie Velveteen ..	29159	11.10.31	27½	8,891	5·99	532·80	350	Mature	..	389, 310	Wotton Airman
Strathkellar Hawthorn ..	..	16.10.31	14½	4,044	5·68	229·74	230	Jr. 2	..	..	King's Bounty of Somerville
Wompini Ballot Girl ..	..	17.10.31	19½	6,181	5·83	360·53	230	Jr. 2	..	..	Werribee Masterman
*Cornflower of Castlemaddie	16718	20.10.31	4	4,305	4·32	186·11	350	Mature	..	372, 291	The Joker of Banyule
Wompini Leonie 8th ..	..	21.10.31	19	5,751	6·26	359·81	230	Jr. 2	..	..	Bruce Vale Brightstar
Castlemaddie Hawthorn..	29157	2.11.31	17	4,565	6·67	304·40	330	Sr. 4	..	316, 337	Bullfinch of Banyule
Milne, R. K., Camperdown, Jersey (2).											
Glenwood Nancy ..	..	11.10.31	18½	5,936	3·26	371·70	290	Sr. 3	..	..	Lady Choice's King 2nd of Glenwood
Allambie Queen 3rd ..	29506	19.10.31	20	7,964	4·42	351·62	270	Jr. 3	..	274	Prince of Kirkhill
Moore, J., and Co., Yarram, Jersey (7).											
†Tooloonook Velveteen 2nd	33550	12.10.31	4	6,885	5·19	357·43	270	Jr. 3	..	253	Beauty 4th Command of Somerville
Antimony's Trixie of Belle Vue	15569	13.10.31	15½	9,515	4·87	463·04	350	Mature	..	479, 460	Columbine's Antimony
Tooloonook Plumbago 2nd	25568	3.11.31	13½	8,372	5·53	462·87	350	Mature	..	323, 427	Heroic of Somerville
Tooloonook Angler's Belle	33539	5.11.31	4	7,428	5·36	397·79	350	Mature	..	440	Heroic of Somerville
Heather 2nd of Springhurst	16967	16.11.31	N.O.C.	7,268	4·80	348·97	350	Mature	..	289, 343	Alloy of Banyule
Tooloonook Boltonia ..	..	17.11.31	13½	7,206	5·93	427·46	310	Jr. 4	..	214, 294	Heroic of Somerville
Tooloonook Sainfoin 2nd	..	20.11.31	12	6,011	5·62	337·99	270	Jr. 3	..	..	Heroic of Somerville
Tooloonook Trixie 6th ..	33549	21.11.31	6	6,694	6·04	404·41	270	Jr. 3	..	208	Heroic of Somerville
Burnside Lilac Bloom 3rd	33542	26.11.31	11	6,996	4·75	332·10	350	Mature	..	283, 207	Retford Lord Twylish
†Burnside Molly ..	25563	30.11.31	4	5,475	4·95	271·03	350	Mature	..	438, 431	Retford Lord Twylish
Tooloonook Sanfoin ..	33546	5.12.31	12	5,700	5·19	295·87	310	Jr. 4	..	..	Dauntless of Somerville
Muhlebach, W. J. (Estate Late), Batesford, Ayrshire (0).											
Retreat Prinula ..	24253	23.10.31	4	5,498	3·96	217·52	230	Jr. 2	..	..	Retreat Radiator
Neave, E. B., Callignee, Jersey (0).											
Elimatta All Eyes ..	26434	5.11.31	10½	5,036	5.07	255.18	330	Sr. 4	..	239	Goldfield Quartz King
Noble, T. M., and Son, Maffra, Jersey (2).											
Aveley Lilian 2nd ..	26199	11.10.31	N.O.C.	8,174	5·41	442·24	310	Jr. 4	..	291	Magnet of Aveley
Aveley Emmeline 2nd ..	29375	16.11.31	23	8,919	5·83	519·60	270	Jr. 3	..	340	Marc Antony of Aveley
Nolte, E. H., Merino, Jersey (4).											
Nairana Cloth of Gold ..	29225	10.10.31	15½	6,813	6·30	449·91	350	Mature	..	453	Burnside Audacious
Nairana Virginia 6th ..	29272	23.10.31	20½	7,208	5·78	416·75	230	Jr. 2	..	..	Strathbow Gold Star
Nairana Virginia 2nd ..	29268	7.11.31	15	6,872	4·78	334·70	350	Mature	..	270	Burnside Audacious
Nairana Semeramis 4th ..	29261	22.11.31	15	5,748	5·31	305·32	230	Jr. 2	..	..	Strathbow Gold Star
Nairana Kitty	29241	19.12.31	28½	8,121	5·02	407·81	350	Mature	..	..	Garante's Colonel of Penrhyn
Clover Flat Starfinch 2nd	26242	23·12·31	14	4,635	6·05	280·32	350	Mature	..	..	Beau Brummel of Banyule
Onley, W. H., Caldermeade, Aryshire (2).											
Holm Iris	21781	20.10.31	16½	7,137	3·70	263·74	230	Jr. 2	..	..	Pride of Thirlmere
Holm Betty	16345	24.10.31	15½	10,015	4·33	433·89	350	Mature	..	286, 331, 408	Grandee of Kelvin Grove
Holm Buttercup ..	20348	2.12.31	N.O.C.	4,860	3·96	192·60	270	Jr. 3	..	186	Pride of Thirlmere
Holm Brilliance ..	20348	22.12.31	16	6,549	3·92	256·70	270	Jr. 3	..	207	Pride of Thirlmere
Osborne, H., Poowong, Jersey (0).											
Grangelea Dainty 2nd ..	23003	29.9.31	13½	6,563	4·69	307·71	350	Mature	..	373, 427, 347	Defender's V.C. of Grangelea
Grangelea Rosebud 4th ..	26393	3.11.31	6	4,261	5·34	227·56	290	Sr. 3	..	245	Dandy of Grangelea
Overend, A. E. (Mrs.), Sale, Jersey (2).											
Bon Accord Island Gem..	25576	7.10.31	21	7,637	5·59	427·23	330	Sr. 4	..	271, 270, 367	Lord Island Fancy of Bruce Vale
Bon Accord Madam Pompadour 2nd	..	18.12.31	16½	4,778	5·87	280·25	230	Jr. 2	..	..	Bon Accord David

* 210 days in test. † 240 days in test.

Name of Cow.	Herd Book No.	Date of Calving.	Milk last day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Class.	Order of Merit.	Previous Yields of Butter Fat.	Sire.
Parbury, W., Warburton, Jersey (3).											
Brookfield Golden Leaf 15th	33581	29.10.31	N.O.C.	4,595	5·68	261·20	230	Jr. 2	..	..	Sweetbread's Duke of Glen Iris
Brookfield Beauty 13th	33578	13.11.31	12	4,558	5·31	241·81	230	Jr. 2	..	..	Sweetbread's Duke of Glen Iris
Brookfield Rosalind 20th	33588	18.11.31	13	4,448	5·07	225·33	230	Jr. 2	..	..	Ewell of Brookfield
Brookfield Songstress 11th	29295	18.11.31	9½	5,691	5·41	307·75	310	Jr. 4	..	341	Sweetbread's Duke of Glen Iris
Brookfield Sunshine 14th	33591	21.11.31	15½	4,966	4·32	214·48	250	Sr. 2	..	..	Sweetbread's Duke of Glen Iris
Brookfield Golden Leaf 14th	29288	25.12.31	17	5,856	6·05	354·35	290	Sr. 3	..	..	Sweetbread's Duke of Glen Iris
Pattison, F., Tongala, Ayrshire (0).											
Willow Park May	16927	28.9.31	8	7,992	3·46	276·78	350	Mature	..	305	Tonga Park James
Willow Park Nell	22242	1.10.31	8	6,479	4·02	260·46	270	Jr. 3	..	280	Clansman of Glenholme
Willow Park Victoria	16928	5.11.31	9½	7,951	4·30	341·80	350	Mature	..	260	Tonga Park James
Pearson, Jas., Nerrena East, Jersey (1).											
*Warrawee V.C. Jewel	33610	1.10.31	4	5,052	4·83	243·77	270	Jr. 3	..	258	Canary's V.C. of Kings Vale
Glenmoor Peerless	33609	22.10.31	18½	7,469	5·29	394·95	350	Mature	..	354	Peerless 19th's Prince of Melrose
Warrawee Music	..	27.10.31	N.O.C.	7,472	5·65	421·85	230	Jr. 2	..	..	Banyule of Tympani
Pettett Bros., Geelong, Ayrshire (1).											
Blinkbrae Vida 3rd	17345	28.9.31	8	6,801	3·98	270·72	310	Jr. 4	..	262, 309	Happy Jack of Gleneira
Blinkbrae Melody	19564	2.10.31	4½	5,390	4·06	219·07	250	Sr. 2	..	209	Happy Jack of Gleneira
†Blinkbrae Melba 7th	17343	5.10.31	4	6,120	3·69	226·13	310	Jr. 4	..	228	Happy Jack of Gleneira
Blinkbrae Vida 2nd	15767	6.10.31	4½	7,583	3·84	290·99	350	Mature	..	293, 324, 314	Lustre of Dunachton
‡Blinkbrae Melba's Pride	19563	24.10.31	4	6,135	4·37	268·07	250	Sr. 2	..	289	Lustre of Dunachton
‡Blinkbrae Bonny	19560	4.11.31	4	6,435	4·46	286·80	290	Sr. 3	..	282	Blair of Blinkbrae
Phillips, J., Murraydale, Jersey (0).											
Vanilla of Peri	18914	16.10.31	6	5,718	5·72	327·19	350	Mature	..	286, 302, 366, 375	Carnation Bosun of Peri
Peri Carnation 3rd	26130	2.12.31	10½	5,384	5·10	274·45	350	Mature	..	207, 233, 236	Carnation Bosun of Peri
Plattfuss, J., Tongala, Friesian (6).											
Greenvale Graceful Segis	3102	3.10.31	12½	6,770	3·70	250·32	310	Jr. 4	..	274, 334	Lydholme Segis Paxton
Darenth Rose Posh	2422	6.10.31	10	11,813	3·06	361·47	350	Mature	..	370	Springfield Champion
Greenvale Dutch Girl	2769	16.10.31	15	13,776	3·31	455·55	350	Mature	..	410, 527, 342	Lydholme Segis Paxton
Greenvale Oakwood Empress	3106	21.10.31	11	8,739	3·40	297·48	350	Mature	..	257, 268, 284	Dominion Oakwood
Greenvale Topsy Paxton	3109	22.10.31	9	9,513	3·06	290·79	330	Sr. 4	..	232, 271, 284	Lydholme Segis Paxton
Greenvale Galatea Paxton	3101	26.10.31	12½	10,199	3·47	354·15	330	Sr. 4	..	270, 390	Lydholme Segis Paxton
Greenvale Piebe Paxton	3492	30.10.31	14	9,396	3·10	291·52	270	Jr. 3	..	274	Lydholme Segis Paxton
Riverbank Spring Patch	2245	4.11.31	13	9,035	3·60	325·55	350	Mature	..	339, 315, 371	Burnbank Patch League
Greenvale Oakwood Galatea 2nd	3107	21.11.31	24½	14,478	3·15	455·72	330	Sr. 4	..	243, 233, 384	Dominion Oakwood
‡Glen Elgin Clarice	2453	26.12.31	4	10,500	3·61	378·78	350	Mature	..	488, 490, 492, 425	Victoria Double Oak De Kol
Polmear, M. H., Tallangatta Valley, Friesian (3).											
Winlaton Queen Jessie	3789	18.10.31	12½	6,718	3·63	243·61	230	Jr. 2	..	..	Netherland King Sylvia 2nd
Fairview Dewdrop	..	23.10.31	19	8,508	3·39	288·28	230	Jr. 2	..	..	Burnbank Gay Triumph
Winlaton White Alcartra	2974	3.12.31	26½	10,360	4·03	417·49	310	Jr. 4	..	195	King Alcartra of Netherland
Poole, M. A. (Mrs.), Caldermeade, Ayrshire (1).											
Ryland Fairy 2nd	..	4.11.31	14	5,187	4·36	226·26	250	Sr. 2	..	..	Roselcigh Bruce
Ryland Stella	20719	14.11.31	18	6,735	3·77	254·18	250	Sr. 2	..	..	Baron of Glen Afton
Powell, Mrs. K., Camperdown, Jersey (2).											
Mount Violet Maud's Reward	34285	15.10.31	25½	7,472	4·75	354·93	230	Jr. 2	..	..	Mount Violet Maitland
Mount Violet Kyeema	23374	26.10.31	27½	9,414	5·30	499·19	350	Mature	..	303, 386	Statesman of Colac
Carson's Pet of Carranballae	17412	3.12.31	22	6,273	4·85	304·43	350	Mature	..	344, 319	Carson of Banyule
Poyner, R., Lilydale, Jersey (2).											
Cream Belle of Kirkhill	21519	18.10.31	17½	8,033	5·47	439·54	350	Mature	..	270, 360, 376, 302	Major of Kirkhill
Kyora Golden Jazz	23406	18.11.31	22	8,896	5·02	446·14	350	Mature	..	360, 415, 453	Foch of Jerrara
Prout, A. P., Leongatha, Jersey (3).											
Wattle Vale Dream	24305	14.10.31	7	5,856	4·97	291·27	330	Sr. 4	..	317, 342, 338	Duke of Melrose
Pineleigh Mermiss	..	16.10.31	17	6,294	5·04	317·39	230	Jr. 2	..	..	Aladdin of Wattle Vale
Pineleigh Golden Lass	33635	15.11.31	13	4,637	6·58	305·13	270	Jr. 3	..	304	Aladdin of Wattle Vale
Purnell, R., Moriac, Jersey (2).											
Narrawong Dolly Grey 3rd	..	9.10.31	13	4,962	5·50	273·00	230	Jr. 2	..	..	Greenwood General
Narrawong Laurie 3rd	..	7.11.31	15½	5,185	5·46	283·01	230	Jr. 2	..	..	Greenwood General
Raggatt, F., Tongala, Jersey (1).											
Strathbow Heather Belle 2nd	34294	7.12.31	22½	7,646	4·91	375·14	230	Jr. 2	..	..	Banyule Fuselage
Raleigh, H. E. (Miss), Pakenham Upper, Jersey (1).											
Burnside Gavotte	24558	2.11.31	10½	5,214	5·77	300·89	350	Mature	..	341 246 284	Retford Lord Twylish
Goronga Farm Daffoplane	..	24.12.31	16½	4,295	5·60	240·33	230	Jr. 2	..	..	Banyule Triplane

* 259 days in test. † 210 days in test. ‡ 240 days in test.

Name of Cow.	Herd Book No.	Date of Calving.	Milk last day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Class.	Order of Merit.	Previous Yields of Butter Fat.	Sire.
Ralph, A., and R., Moorabbin, Illawarra Shorthorn (4).											
*Linda 6th of Lemon Grove	14331	26.10.31	4	6,735	3·86	260·07	270	Jr. 3	..	..	Hero of Lemon Grove
†Parkview Cherry 6th ..	5082	29.10.31	..	6,120	3·87	237·02	230	Jr. 2	..	..	Jean's Monach of Blacklands
Alne Bank Honeysuckle 4th	15068	1.11.31	28½	8,678	4·15	360·56	250	Sr. 2	..	..	Dan of Greyleigh
Ida of Glenroy ..	13045	29.11.31	4	5,894	4·02	237·11	350	Mature	..	..	Rufus 2nd of Greyleigh
Parkview Blossom 4th ..	5081	29.11.31	23	7,320	4·25	310·99	230	Jr. 2	..	..	Jean's Monach of Blacklands
Fussy 6th of Allawalla ..	14333	15.12.31	20	7,919	4·07	322·17	290	Sr. 3	..	..	Premier of Fairfield
‡Holly 3rd of Alne Bank	14320	26.12.31	4	4,500	3·78	170·00	310	Jr. 4	..	..	Butterfield of Alne Bank
Rankin, W. J., Trafalgar, Jersey (4).											
Hazeldale Pearl Queen ..	..	6.11.31	12½	5,026	4·94	248·42	230	Jr. 2	..	..	Dinkum of Banyule
Marimba Fancy Sunlight	..	8.11.31	23½	6,977	4·84	337·53	230	Jr. 2	..	..	Werribee Lord Fancy
Marimba Betty's Sweetbread	..	15.11.31	17½	7,584	4·72	357·86	250	Sr. 2	..	..	Sweetbread's Duke of Glen Iris
Marimba Linnet 2nd ..	..	15.11.31	17	6,728	6·10	410·28	230	Jr. 2	..	..	Werribee Lord Fancy
Read, J. D., Springhurst, Jersey (2).											
Tulip 4th of Springhurst..	21601	28.11.31	15	6,449	6·55	422·60	350	Mature	..	305, 434, 354	Starbright's Prince of Glen Iris
Gladiolus of Springhurst	12216	6·12·31	37	9,600	5·78	555·01	350	Mature	..	341, 479, 542, 547, 443, 600, 564	Arcadia's Choice of Tarnpirr
Richardson, W. S., Bacchus Marsh, Jersey (1).											
Charmian 3rd of Warenda	17802	4.10.31	14	5,292	5·65	299·25	350	Mature	..	345, 350, 443, 297, 353	Kewpie of Warenda
Sutton Lea Jenny ..	23394	24.10.31	18	7,136	6·17	440·62	350	Mature	..	237, 265, 292, 311	Starbright's Prince of Glen Iris
Butter Queen 3rd of St. Albans	21371	29.11.31	16½	5,657	5·58	315·49	350	Mature	..	289, 334, 317, 230, 324	Twylish Expectation of Banyule
Sutton Lea Patricia ..	26438	10.12.31	14	5,952	5·26	313·08	330	Sr. 4	..	285, 250 ..	Lady Lottie's Prince of Belgonia
Robinson, S. L. (Miss), Kew, Jersey (2).											
Kyora Reprieved ..	29372	9.10.31	13½	5,570	5·38	299·47	270	Jr. 3	..	.. ..	Foch of Jerrara
Kyora Rose Dream 2nd..	34304	17.10.31	18½	5,783	5·03	291·06	230	Jr. 2	..	.. ..	Miama's Volunteer of Woodside
Sybils Oakleaf of Woodside	21625	9.11.31	8½	5,397	5·23	282·32	350	Mature	..	208, 233, 342, 354	Pedro
Rodda, W. G., Warracknabeal, Jersey (3).											
Banyarra Attraction ..	34075	6.11.31	18½	6,764	5·20	351·91	230	Jr. 2	..	.. ..	Marc Anthony of Aveley
Thurso Bonnie ..	34306	2.12.31	12½	4,239	6·14	260·09	230	Jr. 2	..	.. ..	Clover Flat Lottie's Beau
Thurso Beauty ..	24205	6.12.31	10	4,380	5·51	241·26	230	Jr. 2	..	.. ..	Clover Flat Lottie's Beau
Ryan, D. M., and Son, Colac, Illawarra Shorthorn (1).											
*Jewel of the Pines ..	10131	2.10.31	4	7,485	3·28	245·32	330	Sr. 4	..	324, 370 ..	Hero of Lemon Grove
Diamond of Lawarra ..	16504	20.10.31	14½	9,075	3·16	286·89	270	Jr. 3	..	344 ..	Mascot of Lawarra
Salesian College, Sunbury, Ayrshire (1).											
Rupertswood Lady Mac..	20710	4.10.31	6½	8,111	3·52	285·71	350	Mature	..	261, 216 ..	Bonnie Scot of Gowrie Park
Rupertswood Spotless ..	20712	20.10.31	16	6,062	3·34	202·64	250	Sr. 2	..	167 ..	Bonnie Scot of Gowrie Park
Rupertswood Bettine ..	22056	28.10.31	10	5,315	3·63	192·80	250	Sr. 2	..	.. ..	Bonnie Scot of Gowrie Park
Rupertswood Patience ..	22058	21.11.31	18½	9,760	3·85	375·72	350	Mature	..	201, 328 ..	Ascot of Elmsdale
†Rupertswood Rose ..	22059	25.12.31	4	5,730	4·16	238·41	350	Mature	..	195, 196, 324	Ascot of Elmsdale
Schier, A. H., Kernot, Ayrshire (0).											
Scotswood Dairy Girl ..	24335	5.10.31	8	4,149	4·16	172·64	230	Jr. 2	..	.. ..	Fulham Donald
Scotswood Blonde ..	24332	8.10.31	12	5,664	4·01	227·36	230	Jr. 2	..	.. ..	Bellboy of Oakbank
Oakbank Gwendoline ..	15243	8.10.31	11½	5,037	3·87	195·26	350	Mature	..	228 153, 121	Regality of Oakbank
Scotswood Joyful ..	24340	21.10.31	4	2,427	4·50	109·23	230	Jr. 2	..	.. ..	Scotswood Combine
Glenafton Gay Girl ..	17947	2.11.31	10½	7,721	3·48	268·41	350	Mature	..	.. ..	Donald Scot of Gleneira
Scotswood Rene 2nd ..	24353	6.11.31	9	4,506	4·19	188·73	230	Jr. 2	..	.. ..	Summerhill Digger
Scotswood Marge ..	24345	19.11.31	8	4,186	5·29	221·46	230	Jr. 2	..	.. ..	Scotswood Malmics Earl
Scotswood Bud ..	15473	1.12.31	12	5,985	3·91	233·84	350	Mature	..	175, 266, 248, 259	Bellboy of Oakbank
Schier, H. A., Bamawn, Jersey (3).											
Green View Janette ..	21649	1.10.31	9	6,965	5·09	354·33	350	Mature	..	356, 315, 365, 404	Perree's Spark of Glen Iris
Green View Wee Mite ..	34313	7.10.31	18½	6,282	5·62	353·16	230	Jr. 2	..	.. ..	Perree's Spark of Glen Iris
Preston Roseleaf ..	25596	12.10.31	20	7,256	4·67	338·63	350	Mature	..	221, 300 ..	Pretty King 2nd of Koorwatha
Stumpy of Belgonia ..	13756	8.11.31	8½	4,982	4·85	241·40	350	Mature	..	331, 421, 472, 467, 498, 452, 275	Hedge of Banyule
Jenny Lind 2nd of Taff Vale	17831	18.11.31	11½	7,259	4·72	342·63	350	Mature	..	352, 349, 396, 349, 218	Trumpeter of Banyule
Green View Frolic ..	34309	22.11.31	11½	5,922	6·37	377·51	230	Jr. 2	..	.. ..	Perree's Spark of Glen Iris
Preston Dairy Girl ..	12063	9.12.31	14½	6,248	4·95	309·21	350	Mature	..	266, 304, 448, 503, 460, 449, 400, 370	Acacia King

* 240 days in test. † 210 days in test. ‡ 180 days in test.

Name of Cow.	Herd Book No.	Date of Calving.	Milk last day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Class.	Order of Merit.	Previous Yields of Butter Fat.	Sire.
Schilpalius, A. J., Kilmany South, Jersey (1).											
Butterfly of Fairbank ..	18962	19.10.31	12	5,861	5·46	320·26	350	Mature ..		185, 313, 310, 251	High Choice of Melrose
Fairbank Queenie 2nd ..	25598	30.10.31	13	5,189	5·72	296·84	270	Jr. 3 ..	..	..	High Choice of Melrose
Selwyn-Scott, F. E., Scotsburn, Dairy Shorthorn (3).											
Willow Park Duchess 14th	Vol. 1, D.S. 4	14.10.31	21	7,871	3·99	313·94	230	Jr. 2 ..	..	..	Willow Park Reflector
Willow Park Bloom 2nd	..	25.10.31	19½	7,579	3·71	281·18	230	Jr. 2 ..	..	..	Willow Park Reflector
Willow Park Peggy 3rd..	..	24.11.31	14½	4 744	4·06	192·60	230	Jr. 2 ..	..	..	Willow Park Eminent
Willow Park Countess 2nd	..	3.12.31	24	8 839	4·40	389·17	350	Mature ..	..	257 300 265 322	Willow Park Radium
Shallard, F. A., Undera, Jersey (1).											
Moorella Hawthorn ..	..	11.10.31	11	7 262	5·54	402·49	290	Sr. 3 ..	..	..	Werribee Ranger
Lady of Tavistock ..	13710	21.12.31	21	6 144	5·53	339·91	350	Mature ..	..	..	Vanilla's Gift of Melrose
Simpson, T. E., and Son, Ferntree Gully, Jersey (4).											
Wompini Rosalie 2nd ..	..	2.10.31	13	5 603	5·92	331·69	230	Jr. 2 ..	..	..	Bruce Vale Brightstar
Wompini Jessica ..	29483	8.10.31	14½	6 291	5·89	370·85	270	Jr. 3 ..	..	393	.. Werribee Masterman
Eminents Chloe 5th of Clarendon Eyre	16348	17.10.31	18	8 279	4·93	408·13	350	Mature ..	..	245 437 438 428	Eminent V.C.
Heather Belle of Aberdour	18972	17.10.31	19	7 458	5·60	417·82	350	Mature ..	..	254 389 420	Lord 2nd of Bruce Vale
Smith, G., and W., Fish Creek, Jersey (5).											
Rydon Alice	26364	1.10.31	10½	5 796	5·63	326·41	290	Sr. 3 ..	..	321	.. Peerless 19th Prince of Melrose
Rydon Mona	33765	12.10.31	13	5 391	6·89	371·66	230	Jr. 2 ..	..	..	.. Burnside Monitor
Elanora Bonnie Girl ..	..	18.10.31	10½	5 240	5·86	306·97	230	Jr. 2 ..	..	..	.. Burnside Harmony
Rydon Lady Patsy ..	29489	21.10.31	10½	6 017	5·78	347·79	270	Jr. 3 ..	..	299	.. Burnside Monitor
Rydon Countess ..	33764	7.11.31	14	5 322	5·86	312·10	230	Jr. 2 ..	..	..	.. Burnside Monitor
Smith, E. L., and Sons, Woodend, Friesian (2).											
Darenth Black Rose ..	2727	1.10.31	22	15 449	3·58	553·69	350	Mature ..	..	345 468 584	Springfield Champion
Road's End Coomasa ..	3706	15.10.31	26	13 625	2·90	394·86	230	Jr. 2 ..	..	..	.. Rosevale Korndyke Sylvia Posch
Smith, W., Trafalgar, Jersey (2).											
Kirkhill Viola	24513	26.10.31	6	6 137	5·44	333·85	350	Mature ..	..	..	.. Daphne 3rd Progress of Kirkhill
Berri Brae Pansy 2nd ..	33768	30.10.31	8½	4 778	6·01	315·62	250	Sr. 2 ..	..	..	.. Glenloch Dairy Lad
*Berri Brae Sweetheart ..	26370	8.11.31	4	5 115	5·77	294·95	290	Sr. 3 ..	..	..	.. Linda 55th V.C. of Kingsvale
Pansy of Timberton ..	10138	3.12.31	5	5 162	5·59	288·56	350	Mature ..	..	444 407 376 373	Rumour of Tarnpirr
Stoll, L. T. (Mrs.), Rokeby, Jersey (0).											
Linga Longa Fancy ..	..	1.12.31	7½	3 267	6·83	223·13	230	Jr. 2 ..	..	..	.. Linga Longa Bankshee
Stoney, W. B., Drouin West, Jersey (1).											
Wompini Grannie's Gem	33803	9.10.31	7	5 069	4·61	233·69	230	Jr. 2 ..	..	..	.. Werribee Masterman
Sutton, H. E., and Son, Callignee, Jersey (2).											
Latrobe Stella 7th ..	25427	4.11.31	9	5 639	5·71	322·02	270	Jr. 3 ..	..	281	.. Superstrain of Banyule
†Glen Valley Lass ..	28982	14.12.31	4	4 665	5·82	271·53	310	Jr. 4 ..	..	299	.. Cream Lad of Mayland
Latrobe Connie ..	24396	23.12.31	5	7 466	5·10	380·81	330	Sr. 4 ..	..	330	.. Concentration of Banyule
Taylor, W. G., Caldermeade, Ayrshire (0).											
‡Eldorada Hawthorn ..	21354	2.10.31	4	2 475	3·69	91·39	230	Jr. 2 ..	..	..	.. Perfection of the Valley
Telford Bros., Kyabram, Ayrshire (0).											
Hyde Park Clarice ..	24040	29.9.31	11½	4 611	4·33	199·67	230	Jr. 2 ..	..	..	.. Oakbank Aristocrat
Trevaskis, F., Tongala, Jersey (3).											
Flower 3rd of Ballara ..	21711	9.10.31	23	10 467	4·79	500·87	350	Mature ..	..	324 419 443 444	Werribee Madeira Creams Masterpiece
Model 2nd of Ballara ..	21712	11.10.31	12½	7 845	4·85	380·81	350	Mature ..	..	293 395 483 343	Werribee Madeira Creams Masterpiece
Model of Ballara ..	19000	17.12.31	32	9 956	5·84	581·31	350	Mature ..	..	393 448 595 619 555	Werribee Madeira Creams Masterpieee
Tuckey, J. F., Alberton, Ayrshire (2).											
Tregorland Keen ..	24425	8.10.31	19½	7 098	3·95	280·37	230	Jr. 2 ..	..	..	.. Gowrie Park Scottish Minstrel
Tregorland Kewpie ..	[illegible]	23.10.31	12	6 570	4·23	280·02	230	Jr. 2 ..	..	..	.. Tregorland Irresistible
Tulloch, W. (Mrs.), Loch, Ayrshire (0).											
*Carrara Rosalind ..	23559	1.11.31	4	2 865	4·15	119·03	230	Jr. 2 ..	..	..	.. Glengowrie Baronet
Carrara Lovesong ..	23557	2.11.31	8	3 920	4·08	159·94	230	Jr. 2 ..	..	..	.. Scotswood Majestic
Unthank, J., Somerville, Jersey (7).											
Moorooduc Hope ..	23480	30.9.31	11	7,600	4·77	362·41	350	Mature ..	..	377, 464	.. His Majesty of Somerville
Moorooduc Belle ..	..	8.10.31	15½	5,042	5·20	262·24	250	Sr. 2 ..	..	..	.. Moorooduc Repulse
Silver Maid 2nd of Glenwood	19003	24.10.31	16	6,393	6·09	389·64	350	Mature ..	..	535, 501	.. Lotus King of Staghorn
Moorooduc Jewel ..	33856	31.10.31	20	6,381	5·54	353·29	250	Sr. 2 ..	..	162	.. Moorooduc Repulse
Moorooduc Ayalie ..	26259	7.11.31	30½	8,382	4·94	413·96	310	Jr. 4 ..	..	431	.. Repulse of Somerville
Moorooduc Lassie ..	21718	7.11.31	21½	8,015	4·90	392·70	350	Mature ..	..	399, 446	.. His Majesty of Somerville
Moorooduc Queenie ..	33859	8.11.31	20½	6,686	5·87	392·38	270	Jr. 3 ..	..	326	.. Moorooduc Repulse
Van Brummelen, J. K., Ferntree Gully, Friesian (2).											
Bolero Diana	..	23.10.31	20	6,080	3.69	246·51	230	Jr. 2 ..	..	..	.. St. Albans Queen's Korndyke 2nd
Bolero Rose Marie ..	3360	25.11.31	31	11,919	2·82	335·54	310	Jr. 4 ..	..	370	.. Burnbank Inka Sylvia's Lad
Vaughan Bros., Girgarre, Jersey (6).											
Lynroy Nancy 2nd ..	24633	30.9.31	19½	8,849	4·78	423·28	350	Mature ..	..	374, 485	.. Choice 2nd of Tarnpirr
Lynroy Nancy 3rd ..	26269	20.10.31	12	8,099	5·66	458·23	330	Sr. 4 ..	..	426, 450	.. Choice 2nd of Tarnpirr
Lynroy Bluebell ..	..	2.11.31	17	7,073	6·04	463·59	270	Jr. 3 ..	..	371	.. Sherbourne Wyndotte's King
Lynroy Pansy 2nd ..	..	18.11.31	7½	5,408	6·87	371·26	230	Jr. 2 ..	..	292	.. Sherbourne Wyndotte's King
Lynroy Jean 3rd ..	26268	1.12.31	17	7,428	5·94	441·14	330	Sr. 4 ..	..	384	.. Choice 2nd of Tarnpirr
Lynroy Viola 3rd ..	..	18.12.31	18	5,700	6·71	382·45	230	Jr. 2 ..	..	335	.. Sherbourne Wyndotte's King

* 240 days in test. † 210 days in test. ‡ 120 days in test.

Name of Cow.	Herd Book No.	Date of Calving	Milk last day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Class.	Order of Merit.	Previous Yields of Butter Fat.	Sire.
Walker, C. S., Swan Hill, Friesian (1).											
Speewa Piebe Violet ..	..	5.12.31	34	10,436	3·60	375·45	230	Jr. 2	..	..	Burnbank Piebe Leonara
Walker, C. S., Swan Hill, Jersey (1).											
Warwick Augustus Marie	..	10.11.31	21½	6,501	5·22	339·18	230	Jr. 2	..	..	Chevolet of Banyule
Wallace, A., Bendigo, Ayrshire (1).											
Spring Dale Duchess ..	18938	3.10.31	5½	6,077	4·37	265·81	330	Sr. 4	..	297, 262	Ben Kell Dainty Don
Spring Dale Dainty ..	16716	4.10.31	5	8,045	4·14	332·74	330	Sr. 4	..	315, 276	Prince of Meadow Vale
Spring Dale Gem ..	22082	18.10.31	6	4,587	4·04	185·11	230	Jr. 2	..	..	Fairy Prince of Glen Cooee
Spring Dale Vanity ..	22086	4.11.31	5	4,589	3·89	178·52	230	Jr. 2	..	..	Glen Cooee Charlie Chaplin
Wallace, A., Bendigo, Jersey (2).											
Preston Bloom ..	..	29.9.31	9	4,977	4·89	243·38	230	Jr. 2	..	..	Preston Pretty Boy
Preston Sun Blossom ..	..	11.10.31	12	5,522	4·64	256·43	230	Jr. 2	..	..	Preston Pretty Boy
Warner and McKenzie, Toora, Jersey (2).											
Elanora Mavis Beauty ..	..	14.12.31	14	5,192	5·45	282·73	230	Jr. 2	..	..	Burnside Harmony
Banyarra Maid ..	28758	15.12.31	15	5,601	5·06	283·60	250	Sr. 2	..	252	Pedestal of Banyule
Warragul High School, Warragal, Red Poll (2).											
Gipps Marion	3121B	2.11.31	15	6,200	4·49	278·30	230	Jr. 2	..	..	Woodburn Laureate
Gipps Nina	2880A	3.11.31	15	6,350	3·93	249·77	230	Jr. 2	..	..	Woodburn Laureate
*Gipps Vesta	2189A	13.11.31	4	3,420	4·04	138·20	270	Jr. 3	..	173	Gipps Remus
Watts, J., Stanhope, Jersey (4).											
Langi Princess	33897	30.11.31	18	5,871	5·37	315·36	230	Jr. 2	..	..	Kantara Starbright Monach
Kantara Trethella's Jenny	26204	1.12.31	21½	7,785	6·69	521·08	310	Jr. 4	..	534, 532	Ku Ku Fashion Plate
Langi Fashion Girl ..	33895	2.12.31	10	3,978	7·11	282·97	230	Jr. 2	..	202	Kantara Starbright Monach
Langi Rosebud ..	29593	18.12.31	22	6,950	6·18	429·26	270	Jr. 3	..	316, 311	Welcome Nugget of Aberdour
Webb, H. L., Sunbury, Ayrshire (1).											
Holly Green Queenhood..	18274	19.11.31	11	8,355	4·06	338·81	310	Jr. 4	..	269	Holly Green Masher
†Holly Green Alma ..	18267	4.12.31	4	3,915	4·36	170·79	310	Jr. 4	..	268	Lily's Goldmine of Holly Green
Holly Green May ..	20335	14.12.31	6	4,802	5·12	246·07	270	Jr. 3	..	238	Holly Green Masher
West, J. C., Notting Hill, Illawarra Shorthorn (1).											
Glenbrook Madge 2nd ..	2862	10.12.31	14	7,139	4·13	294·72	270	Jr. 3	..	218	Lady Rosemont's Gerkin
Williams, F. A., Bamawn, Jersey (1).											
Mornmoot Mascot ..	28555	5.10.31	17½	6,806	6·00	413·96	250	Sr. 2	..	..	Koo-man-goon-ong Prince Nephetos
Wilmot, J., Bullarook, Jersey (2).											
Uphaven Tulip ..	..	3.10.31	17	6,788	5·64	382·59	230	Jr. 2	..	..	Grant's Twylish of Merrivale
Princess of Uphaven ..	15650	12.12.31	25½	9,611	4·67	448·76	350	Mature	..	474, 462	Financier of Kameruka
Wood, J. V. N., Heidelberg, Jersey (11).											
Clarendon Eyre Tangerine 3rd	..	6.10.31	23	7,626	4·66	355·50	230	Jr. 2	..	..	Eminent's Achievement of Clarendon Eyre
Clarendon Eyre Margeurite 4th	..	7.10.31	20	6,180	6·07	375·18	230	Jr. 2	..	..	Clarendon Eyre Silver King
Clarendon Eyre Waltz Dream	33953	14.10.31	20½	8,199	5·51	451·58	250	Sr. 2	..	368	Eminent's Achievement of Clarendon Eyre
Clarendon Eyre Lilac Domino	29622	28.10.31	18½	7,755	6·17	478·43	290	Sr. 3	..	346, 428	Rose's Eminent of Clarendon Eyre
Werribee Fancy Madeira	17715	4.11.31	27	10,944	5·41	592·16	350	Mature	..	486, 512, 647, 626	Masterpiece
Clarendon Eyre Pinafore	29626	6.11.31	13½	7,455	5·89	438·84	310	Jr. 4	..	360, 442	Masterpiece
Lily Christabel ..	33958	12.11.31	17½	6,456	5·58	360·44	230	Jr. 2	..	..	Oxford Sultan's Observer
Clarendon Eyre Iolanthe	26287	4.12.31	16	7,178	5·73	411·16	310	Jr. 4	..	386	Eminent's Achievement of Clarendon Eyre
Clarendon Eyre Belladonna	33939	11.12.31	23	8,193	5·80	475·30	270	Jr. 3	..	420	Eminent's Achievement of Clarendon Eyre
Clarendon Eyre Iolanthe 2nd	..	16.12.31	22	6,300	5·48	345·42	230	Jr. 2	..	..	Eminent's Achievement of Clarendon Eyre
Woodside Sybils Cunning Mouse	23528	18.12.31	17	7,590	4·91	373·04	350	Mature	..	266, 372, 330, 352	Speedwell's Volunteer
Woodmason, W., Oakleigh, Jersey (7).											
Melrose Jessie 47th ..	25700	30.10.31	11	6,443	6·05	388·88	350	Mature	..	231, 355, 412	Sunset of Melrose
Melrose Jessie 52nd ..	29651	31.10.31	22½	6,951	5·53	384·34	290	Sr. 3	..	210 ..	Masterpiece
Melrose Graceful Duchess 44th	25696	2.12.31	20	7,365	6·14	451·92	330	Sr. 4	..	235, 316, 368	Sunset of Melrose
Melrose Jessie 49th ..	25702	4.12.31	20	6,872	5·54	380·39	350	Mature	..	227, 357 ..	Sunset of Melrose
Melrose Lassie Fowler 17th	33963	16.12.31	14	5,667	6·36	360·42	270	Jr. 3	..	274 ..	Masterpiece
Melrose Graceful Duchess 41st	23532	18.12.31	19	6,735	5·55	373·66	350	Mature	..	201, 354, 380, 407 ..	Sunset of Melrose
Melrose Lassie Fowler 18th	..	24.12.31	25	6,219	5·76	358·14	230	Jr. 2	..	..	Melrose Clementine 2nd Masterpiece
Xavier College, Kew, Jersey (2).											
Grangelea Bunty 3rd ..	28495	30.10.31	18	8,560	5·16	441·42	330	Sr. 4	..	355 ..	Mistletoe 2nd V.C. of Tarnpirr
Rosalind 12th of Brookfield.	21564	3.11.31	15½	9,110	4·97	452·91	350	Mature	..	368, 249 ..	Werribee Wyandotte's Star
Young, G. T., Sedwick, Jersey (4).											
Preston Bonnie Jewel ..	33969	10.10.31	17½	6,750	5·97	403·26	250	Sr. 2	..	321 ..	Preston Merry Lad
Preston Golden Elf ..	21803	22.11.31	22½	7,998	5·02	401·12	350	Mature	..	436, 344 ..	Perfect Count of Glen Iris
Preston Fancy Princess ..	..	26.12.31	22½	6,473	4·25	275·05	230	Jr. 2	..	.. ..	Kyora Mayflower's Fancy
Preston Lavender ..	..	27.12.31	20	6,729	4·26	286·77	230	Jr. 2	..	.. ..	Preston Mite Boy's Chief

* 240 days in test. † 150 days in test.

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1 carcass of Prime Lamb ..	22	6
24 tins of Assorted Jam	25	0
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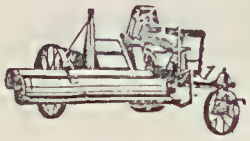

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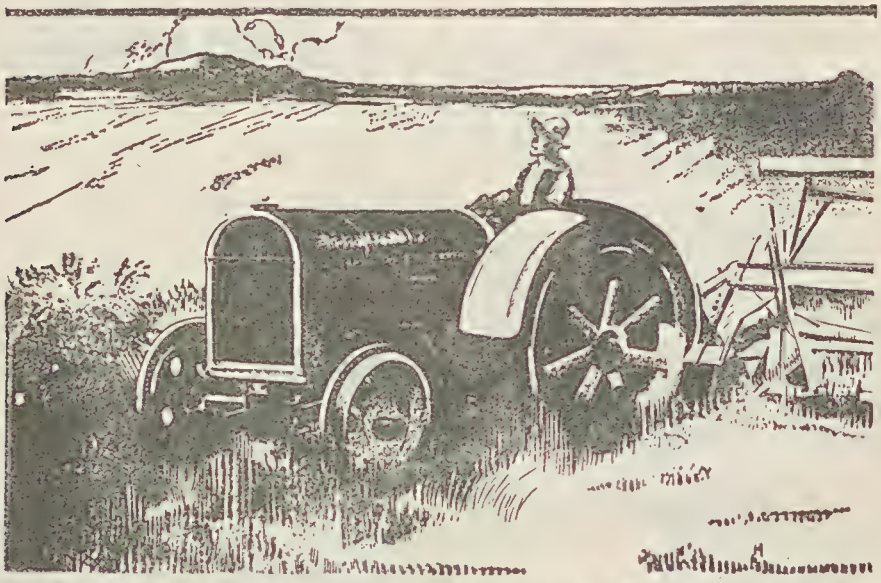

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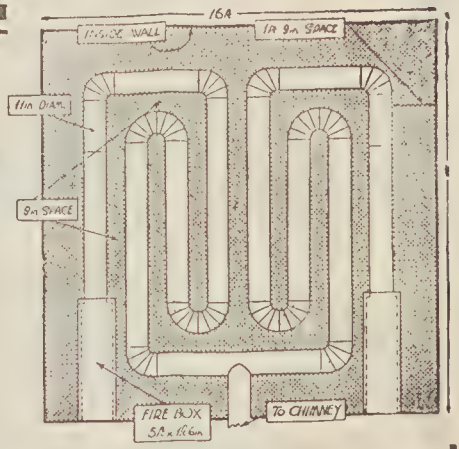

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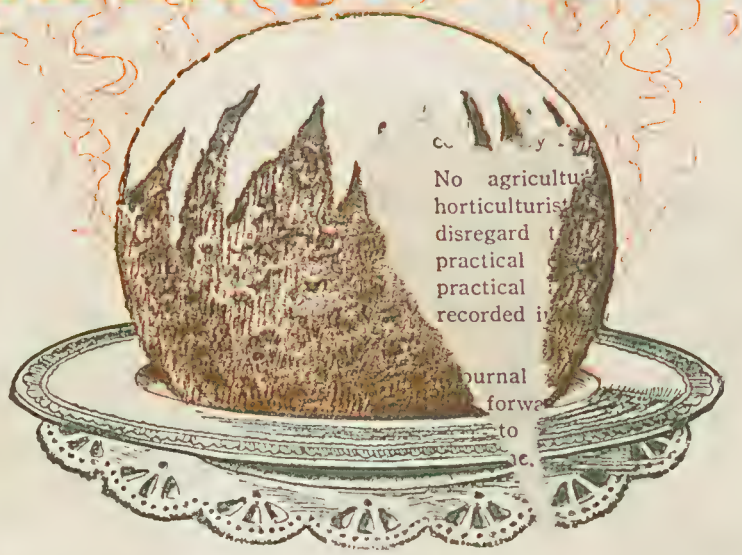

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